

2004



Who's Who in Fluorescence

*Edited by: Chris D. Geddes
Joseph R. Lakowicz*

**Who's Who
in Fluorescence 2004**

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Edited by

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To the Fluorescence Community,

We hope you find this volume a useful resource,

Chris D. Geddes and Joseph R. Lakowicz
October 2003.

Preface

The *Who's Who in Fluorescence* 2003 volume was published in November 2002. It featured some 312 personal entries from fluorescence workers all over the world. Initially we were unsure how useful the volume would be. However, it wasn't very long before we were inundated with requests for both bulk and personal orders. In addition a significant number of copies were freely distributed at conference venues, such as at the Biophysical Society meeting in San Antonio, Texas, March 2003, and at the Methods and Applications of Fluorescence Spectroscopy conference (MAFS) in Prague, Czech Republic, August 2003, where these two venues probably host the largest gathering of Fluorescence workers anywhere. Even when we were initially taking e-mail based submissions, contributors were freely commenting on what a useful resource they saw the volume as being. We subsequently shared these comments on the back outside cover of the 2003 volume. As well as individual scientists supporting the 2003 volume, the Fluorescence based Companies also played a key role, where without their financial support, the volume probably would not have the impact it currently has. As such, the *Who's Who in Fluorescence* 2003 has been a much bigger success than we ever envisaged.

Subsequently, we now present the *Who's Who in Fluorescence* 2004 volume.

The new volume features 359 personal entries from 35 countries around the world. In addition we have increased company support, which should enable us to distribute more copies at targeted venues in 2004.

With regard to content we have changed the contents page layout to now include affiliations, as well as provided more in-depth *Instructions for Contributors* at the back of the volume. We have also made other cosmetic changes throughout the volume.

In the next volume, i.e. 2005, we anticipate introducing a new Author Impact Measure (AIM) number which while voluntary, will give a measure of a contributor's individual citation impact. Details will be posted on the Who's Who website in due course: <http://cfs.umbi.umd.edu/jf/>

Finally we would like to thank Caroleann Aitken for undertaking the mammoth task of typesetting the entire volume in a very timely fashion, as well as Mary Y. Rosenfeld for support. A final thanks also goes out to Aaron Johnson and Kate Davis at Kluwer / Academic Plenum Publishers for helping to make this volume the success it is today, we thank you all.

Chris D. Geddes and Joseph R. Lakowicz
October 2003.

**Who's Who
in Fluorescence 2004**

Contents

Personal Entries

Abugu, Omoefe O.	<i>WorldCom Inc. USA.</i>	1
Aguilar-Caballos, M. P.	<i>University of Córdoba, Spain.</i>	1
Ahuja, Ramesh.	<i>TauTec LLC. USA.</i>	2
Akkaya, Engin U.	<i>Middle East Technical University, Turkey.</i>	2
Alfieri, Fabrizio.	<i>Institute of Protein Biochemistry, Italy.</i>	3
Alfsen, Annette.	<i>Université René Descartes, France.</i>	3
Allison, Ron R.	<i>ECU School of Medicine, USA.</i>	4
Al-Soufi, Wajih.	<i>Universidad de Santiago de Compostela, Spain.</i>	4
Ameloot, Marcel M.	<i>Limburgs Universitair Centrum, Belgium.</i>	5
Anderson, John E.	<i>U.S. Army Research and Center, USA.</i>	5
Andrews, David L.	<i>University of East Anglia, UK.</i>	6
Anzenbacher, Pavel.	<i>Palacky University, Czech Republic.</i>	6
Arden-Jacob, Jutta.	<i>ATTO-TEC GmbH., Germany.</i>	7
Aslan, Kadir.	<i>University of Maryland, USA.</i>	7
Badugu, Ramachandram.	<i>University of Maryland, USA.</i>	8
Bagatolli, Luis A.	<i>University of Southern Denmark, Denmark.</i>	8
Bajzer, Željko.	<i>Mayo Clinic Rochester, USA.</i>	9
Baker, Gary A.	<i>Los Alamos National Laboratory, USA.</i>	9
Baker, Sheila N.	<i>Los Alamos National Laboratory, USA.</i>	10
Balter, Aleksander.	<i>North Copernicus University, Poland.</i>	10
Bane, Susan L.	<i>State University of New York, USA.</i>	11
Barbieri, Beniamino F.	<i>ISS, USA.</i>	11
Bardez, Elisabeth.	<i>Conservatoire National des Arts et Métiers, France.</i>	12
Barisas, George.	<i>Colorado State University, USA.</i>	12
Bartos, Grzegorz.	<i>University of Łódź, Poland.</i>	13
Baumann, Christopher T.	<i>Chroma Technology Corp, USA.</i>	13
Becker, Wolfgang.	<i>Becker & Hickl GmbH., Germany.</i>	14
Beechem, Joseph M.	<i>Molecular Probes Inc., USA.</i>	14
Behne, Martin J.	<i>University of California San Francisco, USA.</i>	15
Belfield, Kevin D.	<i>University of Central Florida, USA.</i>	15
Berberan-Santos, Mário N.	<i>Centro de Química-Física Molecular, Portugal.</i>	16
Bergmann, Axel.	<i>Becker & Hickl GmbH., Germany.</i>	16
Beuthan, Jürgen.	<i>Freie Universität Berlin, Germany.</i>	17
Bhattacharyya, Kankan.	<i>Indian Assoc. for the Cultivation of Science, India.</i>	17
Bieschke, Jan G.	<i>Ludwig-Maximilians-University, Germany.</i>	18
Birmingham, John J.	<i>Unilever, UK.</i>	18
Bojarski, Piotr.	<i>University of Gdańsk, Poland.</i>	19
Borie, Christophe.	<i>Aventis Pharama, France.</i>	19
Bose, Guido.	<i>MPI Biophysical Chemistry, Germany.</i>	20
Brand, Ludwig.	<i>Johns Hopkins University, USA.</i>	20
Braut – Boucher, Françoise.	<i>INSERM, France.</i>	21
Bright, Frank V.	<i>University at Buffalo, USA.</i>	21
Bro, Rasmus.	<i>The Royal Vet. & Agricultural Uni., Denmark.</i>	22
Brochon, Jean-Claude.	<i>C.N.R.S., France.</i>	22

Brouwer, Fred A. M.	<i>University of Amsterdam, The Netherlands.</i>	23
Butler, Peter J.	<i>Pennsylvania State University, USA.</i>	23
Callis, Patrik R.	<i>Montana State University, USA.</i>	24
Castanheira, Elisabete M.	<i>Universidade do Minho, Portugal.</i>	24
Castanho, Miguel A. R. B.	<i>University of Lisbon, Portugal.</i>	25
Cerovic, Zoran G.	<i>LURE-CNRS, France.</i>	25
Chaikovskaya, Olga Nikolaevna.	<i>Siberian Physical Technical Institute, Russia.</i>	26
Chakrabarti, Abhijit.	<i>Saha Institute of Nuclear Physics, India.</i>	26
Chan, Philip J.	<i>Loma Linda University, USA.</i>	27
Chandler, Lin L.	<i>Jobin Yvon Inc., USA.</i>	27
Chattopadhyay, Amitabha.	<i>Centre for Cellular & Molecular Biology, India.</i>	28
Chen, Alex F.	<i>Michigan State University, USA.</i>	28
Cheung, Herbert C.	<i>University of Alabama at Birmingham, USA.</i>	29
Cohen-Luria, Rivka.	<i>Ben-Gurion University, Israel.</i>	29
Comerford, Jeffrey J.	<i>Varian, Australia.</i>	30
Cook, Matthew.	<i>Acumen Bioscience Limited, UK.</i>	30
Coutinho, Paulo J. G.	<i>Universidade do Minho, Portugal.</i>	31
Cummings, Scott D.	<i>Kenyon College, USA.</i>	31
Dale, Robert E.	<i>King's College, UK.</i>	32
D'Auria, Sabato (Tino).	<i>Institute of Protein Biochemistry, Italy.</i>	32
Davenport, Lesley.	<i>Brooklyn College of CUNY, USA.</i>	33
de Almeida, Rodrigo F. M.	<i>Centro de Química-Física Molecular, Portugal.</i>	33
De Schryver, Frans C.	<i>KU Leuven, Belgium.</i>	34
de Silva, Amilra P.	<i>Queen's University, Northern Ireland.</i>	34
De, Soma.	<i>The Rockefeller University, USA.</i>	35
Deligeorgiev, Todor G.	<i>University of Sofia, Bulgaria.</i>	35
Demas, James N.	<i>University of Virginia, USA.</i>	36
Demchenko, Alexander P.	<i>Palladin Institute of Biochemistry, Ukraine.</i>	36
Devaney, John J.	<i>Boston Electronics Corporation, USA.</i>	37
Dobek, Andrzej T.	<i>A. Mickiewicz University in Poznań, Poland.</i>	37
Dong, Wen-Ji.	<i>University of Alabama at Birmingham, USA.</i>	38
Doroshenko, Andrey O.	<i>Karazin National University, Ukraine.</i>	38
Douglas, Peter.	<i>University of Wales Swansea, UK.</i>	39
Dressler, Cathrin.	<i>Laser- und Medizin-Technologie GmbH., Germany.</i>	39
Drexhage, Karl H.	<i>University of Siegen, Germany.</i>	40
Dryden, David T. F.	<i>University of Edinburgh, UK.</i>	40
Duportail, Guy.	<i>Université Louis Pasteur de Strasbourg, France.</i>	41
Dürkop, Axel.	<i>University of Regensburg, Germany.</i>	41
Dyubko, Tatyana S.	<i>Ukrainian National Academy of Sciences, Ukraine.</i>	42
Eaton, Kay.	<i>University of Wales Swansea, UK.</i>	42
Ebright, Richard H.	<i>Rutgers University, USA.</i>	43
Egelhaaf, Hans-Joachim.	<i>University of Tübingen, Germany.</i>	43
Egorova, Alla V.	<i>National Academy of Sciences of Ukraine, Ukraine.</i>	44
Ehrenberg, Benjamin.	<i>Bar Ilan University, Israel.</i>	44
Enderlein, Jörg.	<i>Inst. for Biological Info. Processing, Germany.</i>	45
Engelborghs, Yves.	<i>Katholieke Universiteit Leuven, Belgium.</i>	45

Epand, Richard M.	<i>McMaster University, Canada.</i>	46
Erdmann, Rainer.	<i>PicoQuant GmbH., Germany.</i>	46
Eremenko, Anna M.	<i>National Ukrainian Academy of Sciences, Ukraine.</i>	47
Eremin, Sergei A.	<i>M.V.Lomonosov Moscow State University, Russia.</i>	47
Erker, Wolfgang.	<i>University of Mainz, Germany.</i>	48
Erostyák, János.	<i>University of Pécs, Hungary.</i>	48
Ertekin, Kadriye.	<i>University of Dokuz Eylul, Turkey.</i>	49
Farinha, Jose Paulo S.	<i>Centro de Quimica-Fisica Molecular, Portugal.</i>	49
Felekyan, Suren.	<i>Max-Planck-Institut, Germany.</i>	50
Feller, Karl-Heinz.	<i>University of Applied Sciences Jena, Germany.</i>	50
Ferrer, Maria L.	<i>Instituto de Ciencia de Materiales, Spain.</i>	51
Fidler, Vlastimil.	<i>Czech Tech. Uni. in Prague, Czech Republic.</i>	51
Fidy, Judit.	<i>Semmelweis University, Hungary.</i>	52
Fischer, Peter.	<i>JenLab GmbH., Germany.</i>	52
Fisz, Jacek J.	<i>N. Copernicus University, Poland.</i>	53
Frackowiak, Danuta.	<i>Poznan University of Technology, Poland.</i>	53
Galitonov, Gerasim Stoychev.	<i>University of Warsaw, Poland.</i>	54
Ganesan, Ashok.	<i>University of Strathclyde, UK.</i>	54
Gao, Fang.	<i>University of Tennessee, USA.</i>	55
Garley, Michael S.	<i>University of Wales Swansea, UK.</i>	55
Gatash, Sergiy V.	<i>V.N. Karazin Kharkov National Uni., Ukraine.</i>	56
Gazit, Ehud.	<i>Tel-Aviv University, Israel.</i>	56
Geddes, Chris D.	<i>University of Maryland, USA.</i>	57
Gerritsen, Hans C.	<i>Molecular Biophysics, Debye Inst., Netherlands.</i>	57
Ghiggino, Ken P.	<i>University of Melbourne, Australia.</i>	58
Gómez-Hens, Agustina.	<i>University of Córdoba, Spain.</i>	58
Gooijer, Cees.	<i>Vrije Universiteit Amsterdam, The Netherlands.</i>	59
Greulich, Karl O.	<i>Inst. Mol. Biotech, Germany.</i>	59
Grummt, Ulrich-W.	<i>Friedrich-Schiller-Universitaet Jena, Germany.</i>	60
Gryczynski, Ignacy.	<i>University of Maryland, USA.</i>	60
Gryczynski, Zygmunt.	<i>University of Maryland, USA.</i>	61
Grygon, Christine A.	<i>Boehringer Ingelheim Pharmaceuticals Inc., USA.</i>	61
Grygorovych, Oleksiy V.	<i>V. N. Karazin National University, Ukraine.</i>	62
Gryzunov, Yuriy A.	<i>Russian State Medical University, Russia.</i>	62
Gussakovsky, Eugene E.	<i>Bar Ilan University, Israel.</i>	63
Hallberg, Einar L. P.	<i>Natural Sciences, Södertörns Högskola, Sweden.</i>	63
Hamers-Schneider, Monika.	<i>University of Siegen, Germany.</i>	64
Härtel, Steffen.	<i>Universidad Nacional de Córdoba, Argentina.</i>	64
Haugland, Richard P.	<i>Molecular Probes Inc., USA.</i>	65
Hawkins, Mary E.	<i>National Cancer Institute, USA.</i>	65
Heagy, Michael D.	<i>New Mexico Tech, USA.</i>	66
Heikal, Ahmed A.	<i>Cornell University, USA.</i>	66
Hell, Stefan W.	<i>Max-Planck-Inst for Biophysical Chem., Germany.</i>	67
Hemmingsen, Sherry L.	<i>Varian Inc., USA.</i>	67
Hennecke, Manfred H.	<i>BAM, Germany.</i>	68
Hermetter, Albin.	<i>Technische Universität Graz, Austria.</i>	68

Herrmann, Andreas.	<i>Humboldt-University Berlin, Germany.</i>	69
Hewitt, Joseph D.	<i>Varian Inc., USA.</i>	69
Hind, Andrew R.	<i>Varian Inc., UK.</i>	70
Hirsch, Rhoda E.	<i>Albert Einstein College of Medicine, USA.</i>	70
Hof, Martin.	<i>Acad. of Sci. of the Czech Republic, Czech Republic.</i>	71
Hofstraat, Johannes W.	<i>University of Amsterdam, The Netherlands.</i>	71
Howell, Bonnie J.	<i>University of North Carolina, USA.</i>	72
Hungerford, Graham.	<i>Universidade do Minho, Portugal.</i>	72
Ikkai, Takamitsu.	<i>Aichi Prefectural University of Fine Arts, Japan.</i>	73
Ito, Amando S.	<i>Universidade de São Paulo, Brazil.</i>	73
Jankowski, Andrzej.	<i>University of Zielona Gora, Poland.</i>	74
Johansson, Lennart B.-Å.	<i>Umeå University, Sweden.</i>	74
Johnson, Arthur E.	<i>Texas A&M University, USA.</i>	75
Johnson, Carey K.	<i>University of Kansas, USA.</i>	75
Johnson, Michael L.	<i>University of Virginia, USA.</i>	76
Jones, Anita C.	<i>University of Edinburgh, UK.</i>	76
Josel, Hans-Peter.	<i>Roche Diagnostics GmbH., Germany.</i>	77
Kalnina, Inta.	<i>Russia.</i>	77
Kang, Hee Chol.	<i>Molecular Probes Inc., USA.</i>	78
Kang, Jung Sook.	<i>Pusan National University, Korea.</i>	78
Kaposi, András D.	<i>Semmelweis University, Hungary.</i>	79
Kapusta, Peter.	<i>PicoQuant GmbH., Germany.</i>	79
Karuso, Peter.	<i>Macquarie University, Australia.</i>	80
Kask, Peet.	<i>Evotec OAI AG, Estonia.</i>	80
Kaya, Demet.	<i>Istanbul Technical University, Turkey.</i>	81
Kemnitzer, Norbert U.	<i>ATTO-TEC GmbH., Germany.</i>	81
Kierdaszuk, Borys.	<i>University of Warsaw, Poland.</i>	82
Kinnunen, Paavo K. J.	<i>University of Helsinki, Finland.</i>	82
Kirsch-De Mesmaeker, Andrée.	<i>Université Libre de Bruxelles, Belgium.</i>	83
Kleszczynska, Halina.	<i>Agricultural University, Poland.</i>	83
König, Karsten.	<i>University Jena, Germany.</i>	84
Koppaka, Vishwanath.	<i>University of Pennsylvania, USA.</i>	84
Korotkov, Valentin I.	<i>St. Petersburg State University, Russia.</i>	85
Korovin, Yurii V.	<i>Nat. Academy of Sciences of Ukraine, Ukraine.</i>	85
Kovalska, Vladyslava B.	<i>Inst. of Molecular Biology, Ukraine.</i>	86
Kraayenhof, Ruud.	<i>Vrije Universiteit, The Netherlands.</i>	86
Kubista, Mikael.	<i>TATAA Biocenter, Sweden.</i>	87
Kukhta, Alexander V.	<i>Nat. Academy of Sciences of Belarus, Belarus.</i>	87
Kürner, Jens M.	<i>Center for Fluorescent Bioanalysis, Germany.</i>	88
Kusumi, Akihiro.	<i>Nagoya University Chikusa-ku, Japan.</i>	88
Ladokhin, Alexey S.	<i>University of California at Irvine, USA.</i>	89
Lakowicz, Joseph R.	<i>University of Maryland, USA.</i>	89
Langner, Marek J.	<i>Wrocław University of Technology, Poland.</i>	90
Laue, Thomas M.	<i>University of New Hampshire, USA.</i>	90
Learmonth, Robert P.	<i>University of Southern Queensland, Australia.</i>	91
Lederer, Jonathan.	<i>University of Maryland, USA.</i>	91

Lee, Thomas S.	<i>Cochin Uni. of Science and Tech., India.</i>	92
Lehmann, Frank.	<i>Dyomics GmbH., Germany.</i>	92
Lentz, Barry R.	<i>University of North Carolina at CH, USA.</i>	93
Lianos, Panagiotis.	<i>University of Patras, Greece.</i>	93
Lilley, David M. J.	<i>University of Dundee, UK.</i>	94
Lillo, M. Pilar.	<i>Instituto Química Física, Spain.</i>	94
Lipski, Marcin.	<i>Poznan University of Technology, Poland.</i>	95
Litman, Burton J.	<i>National Institutes of Health, USA.</i>	95
Little, Garrick M.	<i>Li-Cor, USA.</i>	96
Lloyd, David.	<i>Cardiff University, UK.</i>	96
Loew, Leslie M.	<i>Uni. of Connecticut Health Center, USA.</i>	97
Lommerse, Piet H. M.	<i>Leiden University, The Netherlands.</i>	97
Lopez, André.	<i>CNRS, France.</i>	98
Losytskyy, Mykhaylo Yu.	<i>Institute of Molecular Biology, Ukraine.</i>	98
Loura, Luís M. S.	<i>Centro de Química-Física Molecular, Portugal.</i>	99
Lukomska, Joanna.	<i>University of Maryland, USA.</i>	99
Malicka, Joanna.	<i>University of Maryland, USA.</i>	100
Margeat, Emmanuel.	<i>Single Molecule Biophysics Group, USA.</i>	100
Maroncelli, Mark.	<i>Penn State University, USA.</i>	101
Martinho, José M. G.	<i>Centro de Química-Física Molecular, Portugal.</i>	101
Masuko, Masayuki.	<i>Hamamatsu Photonics K. K., Japan.</i>	102
Mateo, C. Reyes.	<i>Universidad Miguel, Spain.</i>	102
Mathis, Gerard.	<i>CIS biointernational, France.</i>	103
Matkó, János.	<i>Eotvos Lorand University, Hungary.</i>	103
Mattheis, James R.	<i>Jobin Yvon Inc., USA.</i>	104
Matveeva, Evgenia G.	<i>University of Maryland, USA.</i>	104
Matyus, Laszlo.	<i>University of Debrecen, Hungary.</i>	105
Mazhul, Vladimir M.	<i>National Academy of Sciences of Belarus, Belarus.</i>	105
Mazzini, Alberto.	<i>University of Parma, Italy.</i>	106
Mazzuca, Claudia.	<i>University of Roma Tor Vergata, Italy.</i>	106
Mei, Weiping.	<i>Nivea R&D cosmed, Germany.</i>	107
Mely, Yves.	<i>Université Louis Pasteur, France.</i>	107
Mendicuti, Francisco.	<i>Univesidad de Alcalá, Spain.</i>	108
Mérola, Fabienne.	<i>Université Paris-Sud, France.</i>	108
Meshkova, Svetlana B.	<i>Nat. Academy of Sciences of Ukraine, Ukraine.</i>	109
Minet, Olaf M.	<i>Charité – Universitätsmedizin Berlin, Germany.</i>	109
Mirochnik, Anatolii G.	<i>Russian Academy of Sciences, Russia.</i>	110
Mishra, Hirdyesh.	<i>Kumaun University, India.</i>	110
Misteli, Tom.	<i>NIH, USA.</i>	111
Mohamed, Ihab Kamal.	<i>Ain-Shams University, Germany.</i>	111
Mohr, Gerhard J.	<i>Friedrich-Schiller University, Germany.</i>	112
Moreno-Bondi, María C.	<i>Complutense University, Spain.</i>	112
Morrison, Larry E.	<i>Vysis/Abbott, USA.</i>	113
Mueller, Francis.	<i>La Roche Ltd, Switzerland.</i>	113
Müller-Newen, Gerhard.	<i>Universitätsklinikum Aachen, Germany.</i>	114
Murakami, Kiyofumi.	<i>Yamaguchi University, Japan.</i>	114

Nepraš, Miloš.	<i>University of Pardubice, Czech Republic.</i>	115
Niles, Walter D.	<i>Genoptix Inc., USA.</i>	115
Norey, Christopher G.	<i>The Maynard Centre, UK.</i>	116
Novo, Mercedes.	<i>Universidad de Santiago de Compostela, Spain.</i>	116
Orellana, Guillermo.	<i>Universidad Complutense Madrid, Spain.</i>	117
Ortmann, Uwe.	<i>PicoQuant GmbH., Germany.</i>	117
Otz, Martin H.	<i>Syracuse University, USA.</i>	118
Pak, Roger H.	<i>Bristol-Myers Squibb, USA.</i>	118
Pantano, Paul.	<i>The University of Texas at Dallas, USA.</i>	119
Papageorgiou, George C.	<i>Nat. Ctr. for Scientific Res. Demokritos, Greece.</i>	119
Papkovsky, Dmitri B.	<i>University College Cork, Ireland.</i>	120
Papper, Vladislav.	<i>Humboldt University of Berlin, Germany.</i>	120
Parfenov, Alexandr S.	<i>University of Maryland, USA.</i>	121
Parkhomyuk–Ben Arye, Pavel.	<i>Ben-Gurion University, Israel.</i>	121
Parola, Abraham H.	<i>Ben-Gurion University, Israel.</i>	122
Pearson, William H.	<i>Berry & Associates Inc., USA.</i>	122
Peknicova, Jana.	<i>Acad of Scences of the Czech Republic.</i>	123
Pelella, Fabrizio.	<i>Institute of Protein Biochemistry, Italy.</i>	123
Peltie, Philippe.	<i>CEA / GRENOBLE, France.</i>	124
Pender, Michael J.	<i>Nanochron LLC, USA.</i>	124
Peng, Xinzhan.	<i>LI-COR BioSciences, USA.</i>	125
Penzkofer, Alfons.	<i>Universität Regensburg, Germany.</i>	125
Perry, Frederick S.	<i>Boston Electronics Corporation, USA.</i>	126
Petersen, Nils O.	<i>The University of Western Ontario, Canada.</i>	126
Pispisa, Basilio.	<i>University of Roma Tor Vergata, Italy.</i>	127
Plantin-Carrenard, Emmanuelle.	<i>University René Descartes, France.</i>	127
Plášek, Jaromír.	<i>Charles University, Czech Republic.</i>	128
Prieto, Manuel.	<i>Centro de Química-Física Molecular, Portugal.</i>	128
Procházka, Karel.	<i>Charles University, Czech Republic.</i>	129
Real Oliveira, Elisabete.	<i>University of Minho, Portugal.</i>	129
Reisfeld, Renata.	<i>The Hebrew University, Israel.</i>	130
Resch-Genger, Ute.	<i>BAM, Germany.</i>	130
Rettig, Wolfgang.	<i>Universität zu Berlin, Germany.</i>	131
Roll, David E.	<i>Roberts Wesleyan College, USA.</i>	131
Romodanova, Ella A.	<i>V.N.Karazin Kharkov National Uni., Ukraine.</i>	132
Roshal, Alexander D.	<i>V.N.Karazin Kharkov National Uni., Ukraine.</i>	132
Roshchina, Victoria V.	<i>Russian Academy of Sciences, Russia.</i>	133
Rubinov, Anatoly N.	<i>Stepanov Institute of Physics, Belarus.</i>	133
Rück, Angelika.	<i>ILM, Germany.</i>	134
Rurack, Knut.	<i>BAM, Germany.</i>	134
Ruysschaert, Jean-Marie.	<i>Université Libre de Bruxelles, Belgium.</i>	135
Ryder, Alan G.	<i>National University of Ireland, Ireland.</i>	135
Saldanha, Carlota.	<i>Instituto de Bioquímica, Portugal.</i>	136
Sanford, Jeffrey S.	<i>FISH Consultants, USA.</i>	136
Santos, Nuno C.	<i>Instituto de Bioquímica, Portugal.</i>	137
Sawyer, William H.	<i>University of Melbourne, Australia.</i>	137

Scarlata, Suzanne F.	<i>S.U.N.Y. Stony Brook, USA.</i>	138
Schmid, Johannes A.	<i>University Vienna, Austria.</i>	138
Schneckenburger, Herbert.	<i>Fachhochschule Aalen, Germany.</i>	139
Schönenberger, Bernhard.	<i>R&D SR, Fluka GmbH, Switzerland.</i>	139
Schroeder, Jörg.	<i>University of Göttingen, Germany.</i>	140
Schulman, Stephen G.	<i>University of Florida, USA.</i>	140
Schwille, Petra.	<i>Max-Planck-Institute, Germany.</i>	141
Scognamiglio, Viviana.	<i>Institute of Protein Biochemistry, Italy.</i>	141
Segers-Nolten, Ine.	<i>University of Twente, Netherlands.</i>	142
Seidel, Claus A. M.	<i>Universtaet Duesseldorf, Germany.</i>	142
Selvin, Paul R.	<i>Uni. of Illinois at Urbana-Champaign, USA.</i>	143
Sibata, Claudio H.	<i>ECU School of Medicine, USA.</i>	143
Siebert, Reiner.	<i>University Hospital Kiel, Germany.</i>	144
Siemiarczuk, Aleksander.	<i>Photon Technology International, Canada.</i>	144
Singh, Manoj K.	<i>University of Kansas, USA.</i>	145
Sitte, Harald H.	<i>Medical University of Vienna, Austria.</i>	145
Smirnov, Aleksandr V.	<i>NHLBI / NIH, USA.</i>	146
Smith, Clint B.	<i>USAERDC-TEC, USA.</i>	146
Smith, Trevor A.	<i>University of Melbourne, Australia.</i>	147
So, Peter.	<i>MIT, USA.</i>	147
Soper, Steven A.	<i>Louisiana State University, USA.</i>	148
Soutar, Ian.	<i>University of Sheffield, UK.</i>	148
Stanley, C. Michael.	<i>Chroma Technology Corp., USA.</i>	149
Stathatos, Elias.	<i>University of Patras, Greece.</i>	149
Stella, Lorenzo.	<i>University of Roma Tor Vergata, Italy.</i>	150
Stockholm, Daniel W.	<i>Genethon, France.</i>	150
Stoop, Karel W. J.	<i>Lambert Instruments, The Netherlands.</i>	151
Sutherland, John C.	<i>Brookhaven National Laboratory, USA.</i>	151
Swanson, Linda.	<i>University of Sheffield, UK.</i>	152
Swift, Kerry M.	<i>Abbott Laboratories, USA.</i>	152
Szmacinski, Henryk.	<i>Microcosm Inc., USA.</i>	153
Talaga, Patrice.	<i>UCB, Belgium.</i>	153
Tanaka, Fumio.	<i>Mie Prefectural College of Nursing, Japan.</i>	154
Tanke, Hans J.	<i>Leiden Uni. Medical Center, The Netherlands.</i>	154
Tchaikovskaya, Olga.	<i>Siberian Physical Tech. Institute, Russia.</i>	155
Thompson, Richard B.	<i>University of Maryland, USA.</i>	155
Tilley, Leann.	<i>La Trobe University, Australia.</i>	156
Tölgyesi, Ferenc G.	<i>Semmelweis University, Hungary.</i>	156
Toptygin, Dmitri.	<i>Johns Hopkins University, USA.</i>	157
Torkelson, John M.	<i>Northwestern University, USA.</i>	157
Trevors, Jack T.	<i>University of Guelph, Canada.</i>	158
Trinquet, Eric.	<i>HTRF Research, France.</i>	158
Ulises, Acuña A.	<i>Instituto de Química-Física, Spain.</i>	159
Vaganova, Evgenia.	<i>The Hebrew University of Jerusalem, Israel.</i>	159
Valenta, Jan.	<i>Charles University, Czech Republic.</i>	160
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van der Draai, Reinier K.	<i>DNW, The Netherlands.</i>	161
van Geest, Lambertus K.	<i>Lambert Instruments, The Netherlands.</i>	161
Van Houten, Kelly A.	<i>Sensors for Medicine and Science Inc., USA.</i>	162
vandeVen, Martin J.	<i>BIOMED, USA.</i>	162
Van Sark, Wilfried.	<i>Utrecht University, The Netherlands.</i>	163
Varriale, Antonio.	<i>Institute of Protein Biochemistry, Italy.</i>	163
Vaudry, David.	<i>University of Rouen, France.</i>	164
Vazquez-Ibar, Jose Luis.	<i>University of California Los Angeles, USA.</i>	164
Vekshin, Nikolai L.	<i>Institute of Cell Biophysics, Russia.</i>	165
Velapoldi, Rance A.	<i>Norway.</i>	165
Velthorst, Nel H.	<i>Vrije Universiteit Amsterdam, The Netherlands.</i>	166
Venanzi, Mariano.	<i>University of Roma Tor Vergata, Italy.</i>	166
Vercammen, Jo.	<i>K.U. Leuven, Belgium.</i>	167
Visser, Antonie J. W. G.	<i>Wageningen University, The Netherlands.</i>	167
Vladkova, Radka S.	<i>Bulgarian Academy of Sciences, Bulgaria.</i>	168
Vöhringer, Peter.	<i>Max-Planck-Institute, Germany.</i>	168
von Mikecz, Anna.	<i>Heinrich-Heine-University, Germany.</i>	169
Waggoner, Alan S.	<i>Carnegie Mellon University, USA.</i>	169
Wahl, Michael.	<i>PicoQuant GmbH., Germany.</i>	170
Ward, William W.	<i>Rutgers University, USA.</i>	170
Wardman, Peter.	<i>Cancer Research, UK.</i>	171
Webb, Watt W.	<i>Cornell University, USA.</i>	171
Westman, Gunnar.	<i>Chalmers Uni. of Technology, Sweden.</i>	172
Widengren, Jerker.	<i>MBB, Sweden.</i>	172
Wilgenhof, Gert J.	<i>Varian BV, The Netherlands.</i>	173
Wilson, Gerald M.	<i>University of Maryland, USA.</i>	173
Windsor, Stuart A.	<i>National Physical Laboratory, UK.</i>	174
Wolfbeis, Otto S.	<i>University of Regensburg, Germany.</i>	174
Wróbel, Danuta.	<i>Poznan University of Technology, Poland.</i>	175
Wu, Meng.	<i>University of Regensburg, Germany.</i>	175
Yao-Qun, Li.	<i>Xiamen University, China.</i>	176
Yarmoluk, Sergiy M.	<i>Institute of Molecular Biology, Ukraine.</i>	176
Ying, Liming.	<i>University of Cambridge, UK.</i>	177
Yue, Stephen.	<i>Molecular Probes Inc., USA.</i>	177
Zander, Christoph C. Z.	<i>University of Siegen, Germany.</i>	178
Zhang, Jian.	<i>University of Maryland, USA.</i>	178
Zheng, Jie.	<i>University of Washington, USA.</i>	179
Zilles, Alexander.	<i>ATTO-TEC GmbH., Germany.</i>	179
Zozulya, Victor N.	<i>NAS of Ukraine, Ukraine.</i>	180

Company Entries

Avanti Polar Lipids Inc.	<i>Alabama, USA.</i>	184
Boston Electronics Corporation	<i>Massachusetts, USA.</i>	185
Carl Zeiss MicroImaging Inc.	<i>New York, USA.</i>	186
Chroma Technology Corp.	<i>Vermont, USA.</i>	187
ISS	<i>Champaign, USA.</i>	188
Lambert Instruments	<i>The Netherlands.</i>	189
LaVision GmbH.	<i>Goettingen, Germany.</i>	190
Ocean Optics B.V.	<i>The Netherlands.</i>	191
Olis Inc.	<i>Georgia, USA.</i>	192
Photon Technology International Inc.	<i>New Jersey, USA.</i>	193
PicoQuant	<i>Berlin, Germany.</i>	194
Tecan	<i>Salzburg, Austria.</i>	195
TEF Labs Inc.	<i>Texas, USA.</i>	196
Thermo Electron Corpotation	<i>Wisconsin, USA.</i>	197
Varian Inc.	<i>California, USA.</i>	198
Instructions for Contributors 2005		199
Personal Template		200
Company and Institution Template		201

Date submitted: 13th September 2002

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Specialty Keywords: Lifetime Fluorescence, Polarization,
Blood, Tissues, Drug Compliance.

Research has involved the use of fluorescence techniques in the detection and characterization of fluorescing moieties in biological systems and for biophysical measurements. Examples include the use of modulation and polarization sensing methods in the detection of red and NIR emitting dyes in tissue and whole blood. Other examples include the use of frequency domain fluorometry and FRET for the study of interactions between hemoglobin and proteins on the cytoplasmic domain of red cell membranes.

O.O. Abugo, Z. Gryczynski and J.R. Lakowicz (1999). J. Biomed. Optics, 4, 429-442.
O.O. Abugo, R. Nair and J.R. Lakowicz (2000). Anal. Biochem. 279, 142-150.

Date submitted: 31st July 2003

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Specialty Keywords: Lanthanide, Fluorimmunoassay, NIR dyes.

Some topics of interest are the use of lanthanide dry-reagent chemical technology and also the study of new reactions to increase the reactivity of long-wavelength fluorophores. Research is also focused on the development of new homogeneous fluoroimmunoassay methods using kinetic methodology to improve some of their analytical features. All reported methods have been applied to different areas such as clinical, environmental and food analysis.

M.P. Aguilar-Caballos and A. Gómez-Hens (2003). Stopped-flow Fluorescence Polarization Immunoassay. *Comb. Chem. T. Scr.* 6, 177-182.
M.P. Aguilar-Caballos and A. Gómez-Hens (2001). Terbium-sensitized luminescence: a selective and versatile analytical approach. *Trends Anal. Chem.* 21(2), 131-141.

Ahuja, R. C.
Akkaya, E. U.

Date submitted: 8th March 2003



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Specialty Keywords: Time-resolved imaging, Spectroscopy and microscopy, Fluorescence lifetime, FLIM, FRET.

TauTec offers state-of-the-art, ultrahigh repetition rate (up to 110MHz) picosecond gated (down to 50ps), gain modulated (up to 1GHz) PicoStar ICCD cameras, low-light sensitive, ultrafast readout CCD cameras, modular multifocal multiphoton TriMScope workstations for real-time 3D fluorescence microscopy with time-lapse, ratio imaging, 2D and 3D kinetics, FLIM, FRET, FRAP, anisotropy and spectral imaging functionalities, live cell and animal imaging, TauScope for fluorescence lifetime imaging microscopy, time-gated Raman imaging and spectroscopy systems, OLED characterization, plasma kinetics spectroscopy, gating and ranging LIDAR.

Date submitted: 10th August 2002



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Specialty Keywords: Fluorescent chemosensors, Molecular logic gates, Molecular devices.

Current interests: Design and synthesis of novel fluorogenic and chromogenic chemosensors for cations, anions and carbohydrates. Novel sensing schemes. Calixarene-based ion-pair sensors and allosterical modulation of binding interactions. Oxidative PET and cation/anion modulation of oxidative PET. Antenna systems. Diazapyrenium-based fluorescent pseudorotaxanes. Novel and efficient sensitizers for photodynamic therapy. Fluorescent chemosensors for dopamine.

C. N. Baki and Engin U. Akkaya (2001). Boradiazaindacene appended calix[4]arene: Fluorescence sensing of pH near neutrality, *J. Org. Chem.* 66, 1512-1513.

B. Turfan and Engin U. Akkaya (2002). Modulation of Boradiazaindacene Emission by Cation Mediated Oxidative PET, *Organic Lett.* 4, 2857-2859.

Date submitted: 16th May 2002

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Specialty Keywords: Biosensor, Fluorescence, Thermophilic enzymes.

My scientific interests deal with the development of innovative protein biosensor for analytes of high clinical, environment and food interests based on the utilization of enzymes and proteins isolated from mesophilic and thermophilic organisms.

My primary goal is to contribute to the realization of new methods for analytes sensing using fluorescence techniques.

In this regard, my Ph.D. thesis is focused on the development of a thermostable and non-consuming substrate fluorescence biosensor for glucose.

Date submitted: 28th August 2002

Annette Alfsen, Ph.D., M.D.



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Université René Descartes,
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Specialty Keywords: Cell biology, Biophysics-Cell membranes.

My field of research has been centered on the molecular interactions at the biophysical level and in cell integrated structures. The physical chemistry of cell membranes and interaction with the surrounding medium and with the neighboring cells is still under study for the entry of HIV in epithelial cells and the infection processes.

Alfsen A. 1989 Membrane dynamics and Molecular traffic and sorting in mammalian cells. Prog. Biophys. Mol. Biol. 54: 145-57.

Alfsen A. and Bomsel M. 2002. HIV-1 gp 41 Envelope Residues 650-685 Exposed on Native Virus act as a Lectin to bind Epithelial Cell GalactosylCeramide. J. Biol. Chem. 277 .25649-659.

Allison, R. R.
Al-Soufi, W.

Date submitted: 6th September 2003

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Specialty Keywords: Cancer, Photodynamic therapy, Optical biopsy.

Research interests are photodynamic therapy optimization for oncological patients, refine and improve therapy both by clinical modifications and via dosimetry enhancement. We have the largest number of chest wall recurrence patients treated with PDT.

Cuenca RE, Allison R, Downie G, Sibata C. Breast Cancer with chest wall progression: treating with Photodynamic Therapy. *Annals of Surgical Oncology*, in press.

Allison R, Mang TS, Henson G, Daugherty D, Photodynamic therapy of chest wall progression from breast cancer is an underutilized treatment modality. *Cancer*, 2001, 91:1-8.

Date submitted: 12th September 2002

Wajih Al-Soufi, Ph.D.



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Specialty Keywords: Fluorescence, Data analysis.

Current interests: Study of the influence of confined media such as cyclodextrins on proton transfer and charge transfer processes. Design of fluorescent probes for the characterisation of supramolecular structures formed by cyclodextrins. Development and implementation of new data analysis methods for steady state and time resolved fluorescence data.

W. Al-Soufi, M. Novo y M. Mosquera (2001). Principal Component Global Analysis of fluorescence and absorption spectra of 2-(2'-hydroxyphenyl)benzimidazole. *Appl. Spectrosc.*, 55, 630-636. E. Alvarez-Parrilla, W. Al-Soufi, P. Ramos Cabrer, M. Novo y J. Vázquez Tato(2001). Resolution of the association equilibria of 2-(p-toluidinyl)-naphthalene-6-sulfonate (TNS) with cyclodextrin and a charged derivative. *J. Phys. Chem. B*, 105, 5994-6003.

Date submitted: 31st August 2002

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Specialty Keywords: Microfluorimetry, Time-resolved fluorescence, Data analysis.

The research deals with the application of steady-state and time-resolved (imaging) microfluorimetry in cell physiology and in the development of biosensors. Currently the focus is on the behavior of oligodendrocytes and the myelin membrane within the framework of *multiple sclerosis* research.

S. Despa, J. Vecer, P. Steels and M. Ameloot (2000) Lifetime-based fluorescence microscopy of the ion indicator Sodium Green in HeLa cells *Anal. Biochem.* 281, 159-175.

N. Boens, J.P. Szubiakowski, E. Novikov and M. Ameloot (2000) Testing the identifiability of a model for reversible intermolecular two-state excited-state processes *J. Chem. Phys.* 112, 8260-8266.

Date submitted: 8th August 2002

John E. Anderson, Ph.D.



U.S. Army Engineering Research and Development Center,
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Specialty Keywords: Fluorescence Remote Sensing, Enzyme Substrates, Waterborne pathogens.

Dr. Anderson's research interests involve active and passive fluorescence sensing to detect and identify waterborne pathogens. Both biotic (defined substrates) and abiotic (polymers) strategies are used with novel bioreporters to recover signatures relevant to pathogenic activity. A major research goal is the molecular-level characterization of relevant fluorophores scaled to the imaging domain for synoptic representation.

Anderson, J.E., Webb, S.R., Fischer, R.L., Smith, C.B., Dennis, J.R., and Di Benedetto, J. (2002). *In situ* detection of the pathogen indicator *E. coli* using active laser-induced fluorescence imaging and defined substrate conversion. *Journal of Fluorescence* (12) 1 p. 51-55.

**Andrews, D. L.
Anzenbacher, P.**

Date submitted: 30th January 2003

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Specialty Keywords: Quantum Electrodynamics, Resonance Energy Transfer, Nonlinear Optics.

Andrews's research centers on molecular and condensed phase photophysics. Early work led to the unified theory of energy transfer¹, subsequently eliciting host effects for FRET applications. His group was the first to identify and predict the characteristics of two-photon resonance energy transfer, anticipating recent FRET experiments on biological systems. In an ongoing project begun in 1998² his group works on energy harvesting in optically nonlinear photoactive systems.

D.L. Andrews (1989). A unified theory of radiative and radiationless molecular energy transfer *Chem. Phys.* 135, 195-201.

R.D. Jenkins and D.L. Andrews (1998). Three-center systems for energy pooling: quantum electrodynamical theory *J. Phys. Chem. A.* 102, 10834-10842.

Date submitted: 15th August 2002

Pavel Anzenbacher, Ph.D., D.Sc.



Inst. of Pharmacology, Faculty of Medicine,
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Specialty Keywords: Protein conformation, Tryptophans, Heme enzymes.

Active sites of cytochromes P450 and other heme enzymes differ in amino acid residues to reflect their function and specificity. Tryptophan fluorescence is studied by stationary approach as well as by time-resolved techniques. Interaction with enzyme substrates often produce fluorescence changes which are characteristic for different cytochrome P450 enzymes. FCS gives then information on changes in protein aggregation and overall conformation.

R. Lange, Anzenbacher P., Müller S., Maurin L., Balny C. (1994) Interact. of tryptophan residues in cytochrome P450_{scc} with a fluorescence quencher *Eur.J.Biochem.* 226, 963-970.
Bemeš M., Hudeček J., Anzenbacher P., Anzenbacher P., Hof M. (2001) Coumarin 6, resorufins and flavins: Suitable chromophores for FCS of biol. molecules. *Coll. Czech. Chem. Commun.* 66, 855-869.

Date submitted: 20th September 2002

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Specialty Keywords: Fluorescent dyes, Biolabelling, Red-absorbing chromophors.

My research is focused on the chemical synthesis and characterization of new red-absorbing fluorophors. I am particularly interested in new fluorescent dyes which are suitable for biolabelling.

Arden-Jacob J., Frantzeskos J., Kemnitzer N. U., Zilles A., Drexhage K.H., Spectrochim. Acta 57A, 2271-2283 (2001).

Arden-Jacob J., Frantzeskos J., Kemnitzer N. U., Zilles A., Drexhage K.H., J. Fluoresc. 7, 91S-93S (1997).

Date submitted: 9th August 2003

Kadir Aslan, Ph.D.



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Specialty Keywords: Biosensors, Nanotechnology, Surface Chemistry.

My research focuses on the development and application of plasmonic/fluorescence-based biosensors using noble metallic nanoparticles. I am also interested in self-organization of the nanoparticles on surfaces using specific biological interactions as well as other aspects of the subject nanotechnology.

K. Aslan and V. H. Pérez-Luna (2002), "Surface modification of colloidal gold by chemisorption of alkanethiols in the presence of a nonionic surfactant" Langmuir, 18, pp. 6059-6065.

V. H. Pérez-Luna, P. Betala and K. Aslan (2002), "Colloidal gold", Review Chapter for *Encyclopedia of Nanoscience and Nanotechnology*.

Badugu, R.
Bagatolli, L. A.

Date submitted: 17th October 2003

Ramachandram Badugu, Ph.D.



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Specialty Keywords: Fluorescence Sensing, Glucose, Anions,
Transition metal ions, Polysilane photochemistry.

Our current research interests including the design and development of charge stabilized quarternary nitrogen based boronic acid probes for fluorescence sensing of biologically important analytes such as glucose and other anions like cyanide, fluoride and phosphates in solution and in solid hydro gel (contact lens). Other interest includes development of *d*- and *f*-block metal ion fluorescence sensors and polysilane photophysics.

R. Badugu, J. R. Lakowicz, and C.D. Geddes, A Glucose Sensing Contact Lens: A Non-Invasive Technique for Continuous Physiological Glucose Monitoring, *Journal of Fluorescence*, 15, 371, 2003. R. Badugu and K. Sakamoto, Effect of Micelle structure on the spectral proerties of poly(dimethylsilylene), *Chem. Commun.* 1369, 2003.

Date submitted: 7th August 2002

Luis A. Bagatolli, Ph.D.



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Specialty Keywords: Multiphoton microscopy, Polarity
sensitive probes, Lipid, Lipid and Lipid, Protein interactions.

My primary research goal is to study lipid/lipid and lipid protein interactions in natural and model membranes. The fluorescence parameters measured in traditional experiments involving liposome solutions can be measured at the level of single vesicles using fluorescence microscopy. Using this last approach is possible to establish a correlation between the microscopic organization on the surface of single vesicles with the physical parameters determined at molecular level on the lipid bilayer (lipid mobility, lipid hydration, etc).

Bagatolli L.A. and E. Gratton. (2001) *J. of Fluorescence* 11:141-160.
Sanchez S., L. A. Bagatolli, E. Gratton, T. Hazlett (2002) *Biophys. J.* 82:2232-2243.

Date submitted: 15th August 2003

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Specialty Keywords: Multiexponential models, Parameter estimation, Deconvolution methods.

My focus in the field of biological fluorescence is on investigation and development of methods for data analysis and on study of multiexponential models. Previous work: The Pade-Laplace method for the analysis of time and frequency domain lifetime measurements; a model for tryptophan fluorescence decay in proteins; new methods for discretization of convolution integrals, yielding more accurate determination of lifetimes and anisotropy decay parameters. Recently: Application of stretched exponential models and fractal kinetics.

Date submitted: 30th August 2003

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Specialty Keywords: Non-aqueous enzymology, Intelligent and bio-inspired materials, Opt(r)odes, Ionic liquids.

Topics of my current research include: Bioencapsulation in confining media, interfacial chemistry, organized assembly, biocompatible colloids, biosensors/assays, supramolecular photochemistry, nanoshells & nanoparticles, photoactive dendrimers.

J. H. Werner, S. N. Baker, and G. A. Baker, (2003) Fluorescence Correlation Spectroscopic Studies of Diffusion within the Ionic Liquid 1-Butyl-3-methylimidazolium Hexafluorophosphate. *Analyst* 128, 786-789.

Baker, S. N.
Balter, A.

Date submitted: 30th August 2003

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Specialty Keywords: Ionic liquids, Nanocomposites, Self-assembly.

Topics of my current research include: Templated synthesis of nanoparticles; photonics of quantum dots and nanostructures; developing an intracellular understanding of chronic beryllium disease; environmental remediation of heavy or toxic metals; bactericidal surface design.

S. N. Baker et al. (2003) Effects of Solubilized Water on the Relaxation Dynamics Surrounding 6-Propionyl-2-(*N,N*-dimethylamino)naphthalene Dissolved in 1-Butyl-3-methylimidazolium Hexafluorophosphate at 298K. *Ind. Eng. Chem. Res.*, in press.

Date submitted: 22nd August 2002

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Specialty Keywords: Molecular biophysics, Photoluminescence, Sonoluminescence.

Current interests: Photophysical and photochemical properties of fluorescence probes. Fluorescence and Raman spectroscopy of protein-water interactions. Single bubble sonoluminescence.

A. Kamińska, M. Kowalska and A. Balter (1999). A comparative study of the effect of exogenous and endogenous photostabilizers in the lens crystallin photodegradation, *J. Fluorescence* 9, 213-219.

J. Szubiakowski, A. Balter, W. Nowak, K. Wisniewski and K. Aleksandrak (1999) Substituent-sensitive anisotropic rotations of 9-acetoxy-10-phenylanthracenes. Fluorescence anisotropy decay and quantum-mechanical study, *Chem. Phys. Lett.* 313, 473-483.

Date submitted: 4th September 2002

Susan L. Bane, Ph.D.



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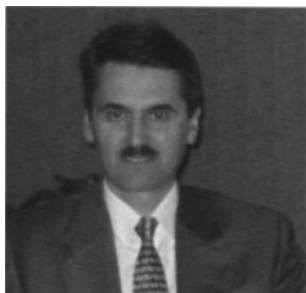
Specialty Keywords: Microtubules, Ligand/receptor interactions, New fluorescent probes.

We are interested in determining the molecular mechanisms by which antimicrotubule drugs (such as paclitaxel (Taxol), colchicine, vinblastine, and combretastatin) interact with the protein tubulin and with microtubules. We use a variety of fluorescence spectroscopy techniques to elucidate these mechanisms. Design and synthesis of new fluorescent probes is also in progress. Baloglu, E., Kingston, D. G. I., Patel, P., Chatterjee, S. K. and Bane, S. L. (2001) Synthesis and microtubule binding of fluorescent paclitaxel derivatives. *Bioorg. Med. Chem. Lett.* 11, 2249-2252.

Han, Y., Malak, H., Chaudhary, A. G., Chordia, M. D., Kingston, D. G. I., and Bane, S. (1998) Distances between the paclitaxel, colchicine and exchangeable GTP binding sites on tubulin. *Biochemistry* 37, 6636-6644.

Date submitted: 15th August 2003

Beniamino F. Barbieri, Ph.D.



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Specialty Keywords: Fluorescence Instrumentation, Fluorescence Correlation Spectroscopy, Confocal Imaging.

As President of ISS, I am fostering our company's efforts and mission towards the development of innovative research-grade instrumentation, which will enable scientists to fully utilize the potentiality of fluorescence techniques in basic research. A parallel mission of our company is the development of novel medical instrumentation utilizing photonics tools. In our constant pursuit of innovations, ISS is wholly committed to offering quality and value added products and services that meet the present and future needs of our customers.

Bardez, E.
Barisas, G.

Date submitted: 13th September 2002

Elisabeth Bardez, Ph.D.



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Specialty Keywords: Excited-state proton transfer, Fluorescent sensors for aluminum(III), Photoinduced tautomerization.

Current interests: Photoinduced tautomerization in amphoteric bifunctional compounds (hydroxyquinolines, hydroxycoumarins). Photoinduced proton ejection from dihydroxynaphthalenes. Design of hexadentate fluorogenic ligands for aluminum determination including bidentate sub-units as 8-hydroxyquinoline, chromotropic acid, etc.

E. Bardez et al. (2001). From 8-hydroxy-5-sulfoquinoline to new related fluorogenic ligands for complexation of aluminium(III) and gallium(III). *New J. Chem.* 25, 1269 - 1280.

E. Bardez (1999). Excited-state proton transfer in bifunctional compounds *Israel J. Chem.* 39, 319 - 332.

Date submitted: 10th July 2002

George Barisas, Ph.D.



Department of Chemistry,
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Specialty Keywords: Cell, Membrane, Dyna.

We examine the dynamics and distributions of cell surface molecules in relation to membrane signal transduction events in cells of the immune system and in gonadotropin-responsive cells. We measure lateral motions through photobleaching recovery and single-particle tracking, rotational motions through time-resolved phosphorescence anisotropy and fluorescence depletion anisotropy and spatial distributions through fluorescence resonant energy transfer and photoproximity labeling. We have developed new or improved implementations of each of the above techniques.

Date submitted: 9th September 2002

Grzegorz Bartosz, Ph.D.



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www.biol.uni.lodz.pl/~kbn

Specialty Keywords: Reactive oxygen species, Transport,
Membrane fluidity.

Membrane fluidity estimated with fluorescent probes and spin labels; fluorimetric and spin trap detection of reactive oxygen species; fluorimetric assays of total antioxidant capacity and cell survival; flow cytometric studies of apoptosis, fluorimetric studies of transport (mainly by Multidrug Resistance Proteins).

Grzelak A, Rychlik B, Bartosz G.: Light-dependent generation of reactive oxygen species in cell culture media. *Free Radic Biol Med.* 30:1418-425 (2001).

Jakubowski W, Bartosz G.: Estimation of oxidative stress in *Saccharomyces cerevisiae* with fluorescent probes. *Int J Biochem Cell Biol.* 29:1297-1230 (1997).

Date submitted: 14th August 2003

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www.chroma.com

Specialty Keywords: Fluorescence Microscopy, Cytometry,
Optics & Fluorochromes.

Providing technical applications support for those requiring precision optical filters and coatings to obtain the best results from their imaging equipment.

Chroma Technology's filters have been developed for a variety of applications: low-light microscopy, cytometry; spectroscopy and laser-based confocal and multi-photon instrumentation.

Becker, W.
Beechem, J. M.

Date submitted: 12th July 2003

Wolfgang Becker, Ph.D.



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Germany.

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becker@becker-hickl.de
www.becker-hickl.com

Specialty Keywords: TCSPC, FLIM, Time-resolved spectroscopy.

W. B. is a specialist of optical short-time measurement techniques. Since 1993 he is the head of Becker & Hickl GmbH in Berlin. His field of interest is development and application of Time-Correlated Single Photon Counting techniques. He likes cats, skiing and beach volleyball. W. Becker, H. Stiel, E. Klose, Flexible Instrument for time-correlated single photon counting, *Rev. Sci. Instrum.* 62 (1991) 2991-2996.

W. Becker, H. Hickl, C. Zander, K.H. Drexhage, M. Sauer, S. Siebert, J. Wolfrum, Time-resolved detection and identification of single analyte molecules in microcapillaries by time-correlated single photon counting. *Rev. Sci. Instrum.* 70 (1999) 1835-1841.

Wolfgang Becker, Axel Bergmann, Christoph Biskup, Thomas Zimmer, Nikolaj Klöcker, Klaus Benndorf, Multi-wavelength TCSPC lifetime imaging. *Proc. SPIE* 4620 (2002) 79-84.

Date submitted: 21st August 2002

Joseph M. Beechem, Ph.D.



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joe@probes.com



Specialty Keywords: Assays, Kinetics, Proteomics, Genomics, imaging.

My research focuses on the development of fluorescence-based technologies/tools in order to solve biomedically relevant problems. Research emphasis integrates the (supposedly) disparate technologies of: proteomics, genomics, high-throughput screening, microarrays, and high-resolution *ex-vivo* and *in-vivo* imaging. Emphasis is placed on obtaining multiplexed correlated kinetic data using multiple detection devices (e.g. microscopes, microplate readers, mass-specs, 2-D gels, microarrays, etc.) during physiological transitions. Currently, fluorescence technology is the only approach that has the inherent dynamic-range, sensitivity, and timing-resolution to span such a wide range of applications.

W. F. Patton and J. M. Beechem. "Rainbow's end: the quest for multiplexed fluorescence quantitative analysis in proteomics." *Curr. Opin. Chem. Biol.*, 6(1):63-69 (2002).

Beechem, J. M. (1992) Global analysis of Biophysical Data. *Methods in Enzymology* 210, 37-54.

Date submitted: 30th August 2002

Martin J. Behne, M.D.

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behnemj@itsa.ucsf.edu

Specialty Keywords: FLIM, Ion gradients, Epidermis.

The physiologic roles and effects of specific ion gradients, and the transporters that generate these gradients are the focus of my interest. With biochemical, molecular, and microscopic methods their expression in epidermal keratinocytes and in whole epidermis is investigated. In whole epidermis, fluorescence lifetime imaging is used to visualize the gradients generated and/or maintained by such transporters, and to further elucidate the spatio-temporal changes in these gradients, their functions, and effects in epidermal differentiation, homeostasis, and disease.

K. M. Hanson, M. J. Behne, N. P. Barry, T. M. Mauro, E. Gratton, and R. M. Clegg (2002)., Two-Photon Fluorescence Lifetime Imaging of the Skin Stratum Corneum pH Gradient *Biophys J* **83**(3), 1682-1690.

Date submitted: 8th August 2002

Kevin D. Belfield, Ph.D.



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www.cas.ucf.edu/chemistry/personnel/belfield.html

Specialty Keywords: Two-photon photochemistry,

Microfabrication, Non-destructive imaging.

Molecular structure/linear absorption/nonlinear absorption relationships of organic molecules, the development of highly efficient two-photon fluorescent dyes, and two-photon polymerization and photochromism are being investigated.

K.D. Belfield, M.V. Bondar, O.V. Przhonska and K.J. Schafer (2002). Steady-State Spectroscopic and Fluorescence Lifetime Measurements of New Two-Photon Absorbing Fluorene Derivatives *J. Fluorescence* **12**, in press.

K.D. Belfield and K.J. Schafer (2002). A New Photosensitive Polymeric Material for Optical Data Storage using Multichannel Two-Photon Fluorescence Readout *Chem. Mater.* **14**, in press.

Berberan-Santos, M. N.
Bergmann, A.

Date submitted: 31st August 2002

Mário N. Berberan-Santos, Ph.D.



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Specialty Keywords: Photophysical kinetics, Resonance energy transfer, Multichromophoric systems.

Current interests: Photophysics of fullerenes (early work included discovery of thermally activated delayed fluorescence¹). Radiative transport in scattering media (previous work on combined radiative and nonradiative transport² included development of a stochastic theory and its experimental test). Excitation energy hopping and transfer in multichromophoric systems.

¹M.N. Berberan-Santos and J.M.M. Garcia (1996). Unusually strong delayed fluorescence of C₇₀, *J. Am. Chem. Soc.* **118**, 9391-9394.

²M.N. Berberan-Santos, E.N. Pereira, and J.G. Martinho (1999), Dynamics of radiative transport, in *Resonance Energy Transfer*, D.L. Andrews and A.A. Demidov eds., Wiley, Chichester.

Date submitted: 12th July 2003

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www.becker-hickl.com

Specialty Keywords: FLIM, TCSPC, Lifetime analysis.

Scientific coworker for research and development of leading-edge photon counting instrumentation at the Becker & Hickl GmbH, Berlin. His commitment to high performance photon counting for imaging applications resulted in a fluorescence analysis software which allows to create color-coded lifetime maps from specially-resolved TCSPC data.

W. Becker, A. Bergmann, C. Biskup, L. Kelbauskas, T. Zimmer, N. Klöcker, K. Benndorf, High resolution TCSPC lifetime imaging. *Proc. SPIE* 4963-30 (2003).

W. Becker, A. Bergmann, H. Wabnitz, D. Grosenick, A. Liebert, High count rate multichannel TCSPC for optical tomography. *Proc. SPIE* 4431, 249-254 (2001).

W. Becker, K. Benndorf, A. Bergmann, C. Biskup, K. König, U. Tirplapur, T. Zimmer, FRET Measurements by TCSPC Laser Scanning Microscopy, *Proc. SPIE* 4431(2001) 9498.

Date submitted: 20th June 2002

Jürgen Beuthan, Ph.D.



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Freie Universität Berlin,
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www.fu-berlin.de

Specialty Keywords: Optical Biopsy, Cell metabolism, Medical applications.

Current Research Interests: My research is focused on advancing fluorescence applications in medicine using native autofluorescence compounds like NADH and Cytokeratin. These investigations are carried out both time-resolved and in cw mode. They serve for investigating metabolic changes, such as cancer or ischemia, using optical methods.

J Beuthan, O. Minet, G. Müller (1993): Observations of the fluorescence response of the coenzyme NADH in biological samples. *Opt. Lett.*, **18**, 1098-1100.

J. Beuthan, O. Minet, G. Müller (1998): Optical Biopsy of Cytokeratin and NADH in the Tumor Border Zone. *Annals New York Academy Sciences*, **838**, 150-170.

Date submitted: 23rd July 2003

Kankan Bhattacharyya, Ph.D.



Department of Physical Chemistry,
Indian Association for the Cultivation of Science,
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www.iacs.res.in/pckb.html

Specialty Keywords: Ultrafast dynamics, Organized assembly.

Our major interest is to study dynamics in organized assemblies using time resolved fluorescence spectroscopy. Solvation dynamics, proton/electron transfer, isomerization and orientational dynamics are found to be dramatically retarded in micelles & reverse micelles, lipids, cyclodextrin, protein, zeolite etc. For instance, solvation dynamics of water in an organized assembly displays a component 100-1000 times slower than that in bulk water.

K. Bhattacharyya, (2003) *Acc. Chem. Res.* **36**, 95.

K. Bhattacharyya et al. (2002) *J. Phys. Chem. B* **106**, 10741.

Bieschke, J. G.
Birmingham, J. J.

Date submitted: 6th September 2002

Jan G. Bieschke, Ph.D.



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Specialty Keywords: FCS, Protein misfolding, Single molecules.

We study aggregation processes in neurodegenerative diseases caused by protein misfolding on a single molecule level. Our aim is the characterization of intermediate steps in aggregation and detection and characterization of misfolded protein aggregates in diagnostic applications by multi-color confocal fluorescent spectroscopy. Systems examined include PrP (Prion diseases), A β (Alzheimer's disease) and synuclein (Parkinson's disease).

Bieschke J, Giese A, Schulz-Schaeffer W, Zerr I, Poser S, Eigen M, and Kretzschmar H (2000) Ultrasensitive detection of pathological prion protein aggregates by dual-color scanning for intensely fluorescent targets. *Proc. Natl. Acad. Sci. U. S. A* **97**, 5468-5473.

Date submitted: 29th August 2003

John J. Birmingham, Ph.D.



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United Kingdom.

Tel: +44 (0) 151 641 3351 Fax: +44 (0) 151 641 1841
John.Birmingham@unilever.com

Specialty Keywords: Photobleaching, Lifetime imaging.
Research emphasis on development of fluorescence technologies to aid detection and imaging of industrially

relevant ingredients deposited on both natural and man-made surfaces at low levels from consumer products. Key techniques include fluorescence photobleaching methods (time and frequency domains) and nanosecond timescale lifetime imaging, the latter implemented in the frequency domain for both widefield imaging and laser scanning geometries to suit a range of distance scales from microscopic to large macroscopic.

J.J.Birmingham (1997) *J.Fluorescence* 7(1):45-54.

J.J.Birmingham (1999) in A.Kotyk (ed) , *Fluorescence Microscopy and Fluorescent Probes* 3, Espero, Prague, pp.23-35.

J.J.Birmingham (2002) in R.Kraayenhof (ed), *Fluorescence Spectroscopy, Imaging and Probes*, Springer, pp.297-316.

Date submitted: 9th March 2003

Piotr Bojarski, Ph.D.

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University of Gdańsk,
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80-952, Poland.
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Specialty Keywords: Energy transport, Aggregation, Monte - Carlo simulation.

Areas of expertise: Multistep excitation energy transport and its trapping in disordered and ordered media, forward and reverse energy transfer, intermolecular aggregation, rotational depolarization of fluorescence, Kennard - Stepanov relation, excited state dipole moments, steady - state and time resolved fluorescence measurements, Monte - Carlo simulation.

P. Bojarski, A. Kamińska , L. Kułak and M. Sadownik, Chem. Phys. Lett. (2003) 375, 547-552.

P. Bojarski, L. Kułak, C. Bojarski and A. Kowski, J. Fluorescence (1995) **5** , 307 - 319.

Date submitted: 5th August 2002

Christophe Borie.



Aventis Pharama,
Assay Development, HTS,
13 quai J. Guesde,
Vitry 94400,
France.
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Specialty Keywords: HTS, Assay development, HTRF.

The use of fluorescence in my activity is directed around two principal axes: on the one hand the use of the transfer of fluorescence in time resolved for the biochemical assays in homogeneous phase, on the other hand cells based assays with use of Acumen technology (scanner laser beam).

**Böse, G.
Brand, L.**

Date submitted: 17th July 2002

Guido Böse, Ph.D.



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Specialty Keywords: FCS, DNA repair, RNA interference.

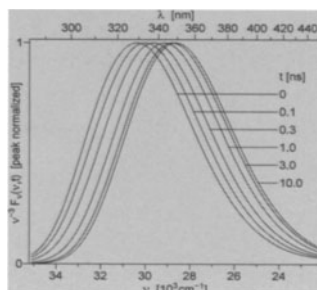
Fluorescence Correlation Spectroscopy is a versatile tool for the examination of biomolecules concerning binding and conformational changes. In my DNA repair project UvrAB are examined for DNA binding and conformational changes with dual color crosscorrelation analysis and single molecule FRET measurements.

In the RNA interference project fluorescently labelled RNAs are used for FCS measurements while silencing gene expression.

Microplate Enzyme-Linked Immunosorbent Assay for the Detection of Primary DNA Alterations Based on the Interaction with UvrA/ UvrB, Böse et al. (2001), Anal. Biochem. 292, 1-7.

Date submitted: 5th September 2002

Ludwig Brand, Ph.D.



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USA.

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Specialty Keywords: Fluorescence, Proteins, Membranes.

The interest of our laboratory is to understand the static and dynamic structure of proteins, biological membranes, and nucleic acids. The work includes studies of the interactions between macromolecules and the relation between structure and function. A variety of excited-state processes such as proton transfer, energy transfer, exciplex and excimer formation and solvent relaxation are being investigated so that these processes can be better used to study biological macromolecules in vivo and in vitro.

Toptygin, D. Savichenko, R.S., Meadow, N.D. and Brand, L., "Homogeneous Spectrally and Time-Resolved Fluorescence Emission from Single-Tryptophan of IIA^{Glc} Protein.", Journal of Physical Chemistry B, 105, 2043-2055 (2001).

Date submitted: 27th August 2002

Françoise Braut – Boucher, Ph.D.



Phagocytes et Réponses Inflammatoires, Unité INSERM 479,
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Specialty Keywords: Fluorescence microplate assays,
Oxidative aggression, Cellular interactions.

Modifications of cellular adhesive capacities associated with oxidative aggression are implicated in several pathologies: Cardiovascular diseases, inflammation and metastasis. The consequences of induced-oxidative stress on cellular interactions are studied on different models *in vitro*. Besides immunological methods or flow cytometry, fluorescence microplate assays are performed using specific fluorescent probes. Cell adhesion (1), reactive oxygen species production, intracellular thiols (2) and apoptosis are analysed in relation to the expression of adhesive molecules.

Braut-Boucher F, Pichon J, Rat P, Adolphe M, Aubery M, Font J. J Immunol Methods, 1995, **178**, 41-51.

Plantin-Carrenard E, Braut-Boucher F, Bernard M, Derappe C, Foglietti M.J, Aubery M. Journal of Fluorescence, 2000, **10**, 167-173.

Date submitted: 16th October 2002

Frank V. Bright, Ph.D.



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The State University of New York,
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Specialty Keywords: Sensors, Materials, Supercritical fluids,
Ionic liquids, Instrumentation.

The primary philosophy linking our research work is that significant improvements in analytical methods and materials will derive from a deeper understanding of the key molecular-level events and processes that are involved. Current efforts in our laboratories focus on the following research topics: [a] sensors, arrays, and detectors; [b] tailored materials for sensors and wound repair; [c] studies of supercritical fluids and room temperature ionic liquids; [d] chemical analysis of things as they are; and [e] instrumentation.

F.V. Bright and C.A. Munson (2003) Time-resolved fluorescence spectroscopy for illuminating complex systems *Anal. Chim. Acta* **500** in press.

Bro, R.
Brochon, J-C.

Date submitted: 28th July 2003

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Specialty Keywords: Chemometrics, Multi-way analysis,
PARAFAC.

Research in mathematical modeling of EEM matrices using multivariate and multi-way methods that enable direct resolution (mathematical chromatography) of mixture measurements.

Date submitted: 23rd August 2002

Jean-Claude Brochon, Ph.D.



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Specialty Keywords: Proteins, Time-resolved anisotropy, Data analysis.

Structural dynamics and function of biological macromolecules from time-resolved fluorescence *in vitro*. Currently, protein dynamics, self-assembly of proteins, protein-nucleic acids and protein-protein interactions. A recent project in my laboratory is to extend these studies, *in vivo*, in using 2-photons confocal microscopy and FLIM techniques; application to retrovirus replication. High hydrostatic pressure for study of protein plasticity. Application of the Maximum Entropy Method of data analysis in time-resolved spectroscopies.

Deprez, E., Tauc, P., Leh, H., Mouscadet, J-F., Auclair, C. Hawkins, M. E., Brochon, J-C., DNA binding induces dissociation of the multimeric form of HIV-1 integrase : A time-resolved fluorescence anisotropy study, Proc. Nat. Acad. Sci. USA, (2001) 98, 10090- 10095.

Date submitted: 14th August 2003

Fred A. M. Brouwer, Ph.D.



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Specialty Keywords: Fluorescent probes, Motor molecules,
Photochemistry, Computational chemistry.

A traditional research theme of our group is photoinduced electron transfer. One of the subjects of study is a class of strongly fluorescent and highly solvatochromic electron-donor acceptor molecules which we apply as probes of the dynamics of solutions and polymer media. A second main theme is “motor molecules”, synthetic analogs of motor proteins, that is: molecules which can be made to undergo large-amplitude motion. We mainly use electron transfer (photochemical or electrochemical) and E-Z isomerization as stimuli.

A. M. Brouwer, C. Frochot, F. Gatti, D. A. Leigh, L. Mottier, F. Paolucci, S. Roffia and G. W. H. Wurpel, (2001), *Science*, **291**, 2124-2128.

A.M. Brouwer *Structural aspects of exciplex formation*, In *Methods in Stereochemical Analysis* Waluk, J., Ed.; Wiley-VCH: New York, 2000, pp 177-235.

Date submitted: 21st August 2002

Peter J. Butler, Ph.D.



Bioengineering, The Pennsylvania State University,
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Centre County, 16802,
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Specialty Keywords: Vascular biology, Endothelial cells,
Mechanotransduction, Spectroscopy.

Our laboratory is interested in applying sophisticated imaging techniques including confocal microscopy and time correlated, single photon counting spectroscopy to study the effects of mechanical forces (e.g. fluid shear stress) on the mechanics and dynamics of molecules in living cells and tissues involved in mechanotransduction. We wish to use these techniques to understand the molecular bases of mechanically-induced changes in vascular biology.

Date submitted: 31st August 2002

Miguel A. R. B. Castanho, Ph.D.



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Specialty Keywords: Biomembrane, Quenching, Structure.

Fluorescence spectroscopy is used to obtain structural information on the organization of polyene antibiotics and peptides in aqueous media and lipidic bilayers. The agreement between experimental data and theoretical expectations in different techniques (e.g., quenching, energy transfer and migration, anisotropy and linear dichroism), leads to conclusions about, for instance, partition coefficients, aggregation, location, orientation and lateral and rotational dynamics of probes. Recently, the experimental results have been compared to predictions obtained by brownian dynamics simulations.

Date submitted: 11th September 2002

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Specialty Keywords: Photosynthesis, Chlorophyll, Polyphenols.

Studies on the interactions between photochemistry and biochemistry in photosynthesis. Spectroscopy of functional intact isolated chloroplasts and reconstituted chloroplast systems. Investigations on the origin of variable chlorophyll fluorescence *in vivo*. Time-resolved measurements of fluorescence (sub-nanosecond). Investigation on the origin of blue-green fluorescence of plants, and on the UV-excited fluorescence of leaves in general. Design of fluorescence signatures for remote sensing of vegetation.

Latouche, G., Cerovic, Z.G., Montagnini, F. & Moya, I. (2000) Light-induced changes of NADPH fluorescence in isolated chloroplasts: a spectral and fluorescence lifetime study. *Biochim. Biophys. Acta*, **1460**(2-3): 311-329. Ref 2: Ounis, A., Cerovic, Z.G., Briantais, J.-M. & Moya, I. (2001) Dual excitation FLIDAR for the estimation of epidermal UV absorption in leaves and canopies. *Remote Sens. Environ.*, **76**: 33-48.

Date submitted: 20th August 2003

Olga Nikolaevna. Chaikovskaya, Ph.D.



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Specialty Keywords: Photochemistry, Fluorescent spectroscopy, Photolysis.

The method of fluorescent spectroscopy is used to investigate the influence of the pH of the medium and of the exciting radiation wavelength on phototransformations of *o*- and *p*-cresol in water under UV irradiation. It is demonstrated that the efficiency of cresol photodecomposition decreases with the increasing pH of the medium. The efficiency of cresol phototransformations in an alkaline medium is higher under irradiation at 283 nm, whereas in a neutral medium, it is higher under irradiation at 222 nm.

Svetlichnyi, O. N. Chaikovskaya, O. K. Bazyl', *et al.* (2001). *High-Energy Chemistry*, **35** 258 (Translated from Khimiya Vysokikh Energii, Russia).

Date submitted: 22nd August 2003

Abhijit Chakrabarti, Ph.D.



Biophysics Division, Saha Institute of Nuclear Physics,
1/AF Salt Lake,
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India.

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abhijit@biop.saha.ernet.in
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Specialty Keywords: Spectrin, Membrane skeleton, Thalassemia.

Major research interest of my lab has been the study of the membrane skeletal network in the erythrocytes. We have been working on spectrin-based skeletal network to understand the protein-protein and lipid-protein interactions among the erythroid membrane components using hydrophobic fluorescent probes. We have been recently working on hemoglobin disorders and have shown differential spectrin interactions with the hemoglobin variants HbE & HbA2 implicated in β -thalassemia.

Sibnath Ray & Abhijit Chakrabarti. Erythroid spectrin in micellar detergents. (2003). *Cell Motil. Cytoskeleton* 54, 16-28.

Poppy Datta, Sudipa Basu Chakrabarty, Amit Chakrabarty & Abhijit Chakrabarti.

Interaction of erythroid spectrin with hemoglobin variants : Implications in beta-Thalassemia. (2003). *Blood Cells Mol Dis.* 30, 248-253.

Date submitted: 27th July 2002

Philip J. Chan, Ph.D., HCLD



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www.llu.edu/lluhc/fertility

Specialty Keywords: Andrology, Embryos, Infertility.

Formerly at the Comparative Medicine Study Section NIH and presently an inspector for the College of American Pathologists, my research is in fluorescent assay development, sorting for gender selection, HPV transgenesis, gene mutations, apoptosis in gametes and embryos.

Chan PJ, Mann SL, Corselli JU, Patton WC, King A, Jacobson JD. A simple DNA disc chip in a microarray design based on comparative genomic hybridization for sperm DNA analysis. *Fertil Steril* 2002;77:1056-1059.

Lee CA, Huang CTF, King A, Chan PJ. Differential effects of human papillomavirus DNA types on p53 tumor-suppressor gene apoptosis in sperm. *Gynecol Oncol* 2002;85:511-516.

Date submitted: 13th September 2002

Lin L. Chandler, Ph.D.



SPEX Fluorescence, Jobin Yvon Inc.,
3880 Park Ave, Edison,
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Lin_Chandler@jyhoriba.com

Specialty Keywords: Anisotropy, Photon-counting, Frequency-domain.

Member of a team of scientists providing fluorescence applications support, training and new methods development for users of SPEX spectrofluorometers. Support is provided for all users interested in applying high sensitivity photon-counting, steady-state fluorescence spectroscopy, fluorescence microscopy and picosecond time-resolved, frequency-domain methods to their own research projects.

**Chattopadhyay, A.
Chen, A. F.**

Date submitted: 25th July 2003



Amitabha Chattopadhyay, Ph.D.

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Specialty Keywords: Biomembranes and other organized assemblies, Solvent relaxation, FRAP.

My major research interest is the application of fluorescence spectroscopic approaches to problems in membrane and receptor biology. We have successfully utilized approaches based on slow solvent relaxation rates in organized molecular assemblies such as membranes, micelles, and reverse micelles to address key questions related to their organization and dynamics including issues in membrane domains. Another area of interest is the application of fluorescence techniques to explore organization and dynamics of membrane receptors in order to understand their function.

R. Rukmini, S. S. Rawat, S. C. Biswas and A. Chattopadhyay (2001) *Biophys. J.* **81**, 2122-2134.

A. Chattopadhyay (2003) *Chem. Phys. Lipids* **122**, 3-17.

Date submitted: 1st August 2002



Alex F. Chen, M.D., Ph.D.

Department of Pharmacology and Toxicology & the
Neuroscience Program, Michigan State University,
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Specialty Keywords: Vascular biology, Gene therapy, Oxidative stress.

Dr. Alex Chen's research laboratory studies vascular biology and gene therapy, focusing on oxidative stress-induced vascular dysfunctions in hypertension, diabetes, and ischemic stroke. Conventional and confocal fluorescent microscopies are routinely used, among other techniques.

L.X. Li, E. Crockett, D.H. Wang, J.J. Galligan, G.D. Fink and A.F. Chen (2002). Gene transfer of endothelial NO synthase and manganese superoxide dismutase on arterial vascular cell adhesion molecule-1 expression and superoxide production in deoxycorticosterone acetate-salt hypertension. *Arterioscler. Thromb. Vasc. Biol.* **22**, 249-255.

Date submitted: 23rd August 2002

Herbert C. Cheung, Ph.D.

Department of Biochemistry and Molecular Genetics,
University of Alabama at Birmingham,
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Birmingham, AL 35294-0005, USA.
hccheung@uab.edu

Specialty Keywords: Motor proteins, Troponin, FRET.

My research is focused on the application of fluorescence in general, and FRET in particular, to mechanistic studies of motor proteins (muscle myosin and kinesin), molecular and structural aspects of calcium activation and regulation of cardiac myofilaments, modeling of the actomyosin cycle, complemented by collaborative efforts using molecular modeling and other forms of spectroscopy. Recently, we started FRET on proteins exchanged into single skinned muscle fibers for simultaneous correlation of conformational changes with fiber activation.

W.-J. Dong, J. Xing, M. Villain, M. Hellinger, J. R. Robinson, M. Chandra, R. J. Solaro, P. K. Umeda, and H. C. Cheung (1999) *J. Biol. Chem.* **274**, 31382-31390.

W.-J. Dong, J. M. Robinson, J. Xing, P. K. Umeda, and H. C. Cheung (2000) *Protein Sci.* **9**, 280-289.

Date submitted: 4th September 2002

Rivka Cohen-Luria, Ph.D.

Chemistry, Ben-Gurion University,
P.O. Box 653, Beer Sheva,
Israel, 84105.
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Specialty Keywords: Prostaglandins, Membrane Dynamics, Lipid-Protein & Protein-Protein & Protein-Ligand / drug Interactions.

Research topics: The role of hydrophobic interactions in membranal and non-membranal protein function and regulation, signal transduction, cell cycle and proliferation, cell differentiation and intercellular interactions, angiogenesis, apoptosis, magnetic field effects on biological systems.

On the Regulatory Role of Dipeptidyl Peptidase IV (= CD26 = Adenosine Deaminase Complexing Protein) on Adenosine Deaminase activity. I. Ben-Shooshan, A. Kessel, N. Ben-Tal, R. Cohen-Luria and A.H. Parola. *Biochim. Biophys. Acta*, 1587, 21-30 (2002).

Nature of interaction between basic fibroblast growth factor and the antiangiogenic drug 7,7-(carbonyl-bis[imino-N-methyl-4,2-pyrrolicarbonylimino[N-methyl-4,2-pyrrolicarbonylimino]]-bis-(1,3-naphthalene disulfonate): 2. Removal of polar interactions affects protein folding. M. Zamai, C. Hariharan, D. Pines, M. Safran, A. Yayon, V.R. Caiola, R. Cohen-Luria, E. Pines and A.H. Parola. *Biophys. J.*, in press.

Comerford, J. J.
Cook, M.

Date submitted: 12th September 2002

Jeffrey J. Comerford, Ph.D.



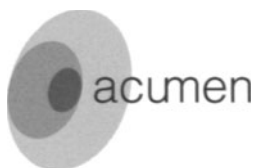
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Specialty Keywords: Life science, Molecular spectroscopy,
Molecular biology, Analytical instrumentation.

My background is in molecular spectroscopy, in particular, the solution and photochemical behavior of square planar platinum(II) anti-cancer drugs. Experienced in the use of fluorescence, UV-Vis absorption and high pressure spectroscopy techniques with particular areas of interest including genomics, protein and cell based fluorescence applications, HTS assays and *ab initio* theoretical calculations. My current role is in marketing and business development, where I am responsible for Varian's fluorescence product line, which includes the Cary Eclipse fluorescence spectrophotometer.

Date submitted: 14th July 2002

Matthew Cook, Ph.D.



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Tel: +44 (0) 176 326 2233 Fax: +44 (0) 176 326 6729
mcook@acumenbioscience.com
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Specialty Keywords: Laser-Based Scanning, Fluorescent
Detection, HTS.

Acumen Bioscience Ltd provides solutions to the drug discovery industry. The company develops and provides laser-based fluorescence detection instruments, assay protocols and reagents. The technologies combine high information screening with throughputs for both cell-based and cell-free assays.

The Acumen ExplorerTM instrumentation uses of fluorescent dyes to monitor changes in intra and extra cellular biochemical events. The proprietary software algorithms allow measurements of cell morphology, size, and spectral characteristics utilizing either single or multiple fluorescent dyes.

Date submitted: 31st July 2002

Paulo J. G. Coutinho, Ph.D.



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Portugal.
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www.fisica.uminho.pt

Specialty Keywords: Kinetics in confined media, Biophysics,
Nanoparticles production by surfactant templating.

Current interests: Biophysics, kinetics in confined media, self-assembly molecules, microaggregates (structure and applications), computer simulations, solar energy conversion, dynamics in biological membranes, photodegradation of pollutants, semiconductor nanoparticles, Langmuir-Blodgett films, surfactant templating. J. A. B. Ferreira, P. J. G. Coutinho, S. M. B. Costa, J. M. G. Martinho (2000), Dissociation Kinetics of Excited Rhodamine $^3B^+ClO_4^-$ in Water/toluene Mixtures: Dynamic Aspects, *Chem. Phys.* 262, 453.

A.L.F. Baptista, P.J.G. Coutinho, M.E.C.D. Real Oliveira, J.I.N. Rocha Gomes (2000), Effect of Surfactants in Soybean Lecithin Liposomes Studied by Energy Transfer between NBD-PE and N-Rh-PE, *J. Liposome Research*, 10, 419.

Date submitted: 28th August 2002

Scott D. Cummings, Ph.D.



Department of Chemistry,
Kenyon College, Gambier,
OH 43022,
USA.

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cummings@kenyon.edu
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Specialty Keywords: Photoluminescent metal complexes.

Research with undergraduates at Kenyon College centers on the synthesis and spectroscopy of transition metal complexes having long-lived excited states. Special attention has focused on photoluminescent platinum (II) complexes capable of photo-induced electron transfer and energy transfer.

M. Cortes, J. D. Oppenheimer, K. E. Downey and S. D. Cummings (2002) "Photoinduced Electron Transfer and Energy Transfer Reactions of Hydroxo-(2,2':6',2"-terpyridine) Platinum (II)" *Inorganica Chimica Acta* 333, 147-150.

S. E. Hobert, J. T. Carney, S. D. Cummings (2001) "Synthesis and Luminescence Properties of Platinum(II) Complexes of 4'-Chloro-2,2':6',2"-terpyridine and 4,4',4"-Trichloro-2,2':6',2"-terpyridine" *Inorganica Chimica Acta*, 318, 89-96.

Dale, R. E.
D'Auria, S.

Date submitted: 22nd July 2002



University of London

Robert E. Dale, Ph.D.

The Randall Centre for Molecular Mechanisms of Cell
Function, King's College, London.

&

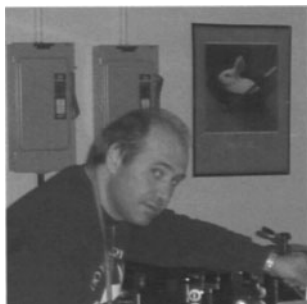
GKT School of Biomedical Sciences,
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London, SE1 1UL, UK.

Tel: 44 (0)207 848 6471 Fax: 44 (0)207 848 6435

Specialty Keywords: Orientation, Depolarization, FRET.

Theory and practice of steady-state and time-resolved fluorescence and fluorescence polarization spectroscopy and Förster long-range resonance excitation energy transfer (FRET) as probes of molecular, macro-molecular and supra-molecular structure and dynamics in their relation to biochemical and biological function and mechanism. Recent and current efforts centre on muscle cross-bridge orientation and dynamics by fluorescence depolarization, and location of TaxolTM binding site in microtubules by homogeneous FRET depolarization.

Date submitted: 9th May 2003



Sabato (Tino) D'Auria, Ph.D.

Senior Scientist and V. Associate Professor,
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Specialty Keywords: Thermophilic enzymes, Fluorescence biosensor, Protein structure.

My primary research goal is to advance the field of protein research by investigating the functional and structural features of enzymes and proteins by biophysical approach. My research activity is focused on the study of the relationships of structure-function-stability, in enzymes and proteins. In particular, I am interested in the study of thermostable biomolecules isolated from thermophilic microorganisms. These macromolecules show an uncommon stability at high temperature, pressure, and in the presence of organic solvents and detergents. Since 1997 I am collaborating with the Center for Fluorescence Spectroscopy, Baltimore, USA for the development of a new class of stable fluorescence protein sensors for analytes of high clinical, industrial and environmental interests.

Date submitted: 13th September 2002

Lesley Davenport, Ph.D.



Department of Chemistry, Brooklyn College of CUNY,
2900 Bedford Avenue, Brooklyn,
New York 11210,
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Specialty Keywords: Time-resolved fluorescence, Lipid packing and dynamics, Fluorescent probes.

Research in our laboratory is currently focused on employing fluorescence methods for studying molecular interactions. We are particularly interested in employing long-lived fluorescence probes for investigating submicrosecond dynamics.

L. Davenport, B. Shen, T.W. Joseph and M.P. Straher (2001) A Novel Fluorescent Coronenyl-Phospholipid Analogue for Investigations of Submicrosecond Lipid Fluctuations. *Chem. Phys. Lipids*. **109**, 145-156.

P. Targowski and L.. Davenport (1998) Pressure Effects of Submicrosecond Phospholipid Dynamics Using a Long-Lived Fluorescence Probe, *J. Fluorescence*, **8**, 121-128.

Date submitted: 12th September 2002 **Rodrigo F. M. de Almeida, (Ph.D. student)**



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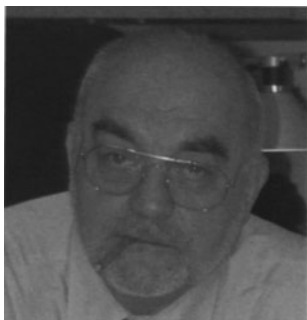
Specialty Keywords: Membrane domains, Lipid bilayers, Lipid-protein interactions.

Phase separation in multicomponent lipid bilayers (domain formation and topology in binary and ternary membranes). Model systems for raft/non-raft coexistence Interaction of peptides with membranes and its relation with the phase behaviour/domain structure (mutual influence concerning extent of interaction, structure and dynamics).

R. F. M. de Almeida, L. M. S. Loura, A. Fedorov, and M. Prieto (2002) *Biophys. J.* **82**, 823-834.
L. M. Contreras, R. F. M. de Almeida, A. Fedorov, J. Villalain, and M. Prieto (2001) *Biophys. J.* **80**, 2273-2283.

Date submitted: 3rd September 2002

Frans C. De Schryver, Ph.D.



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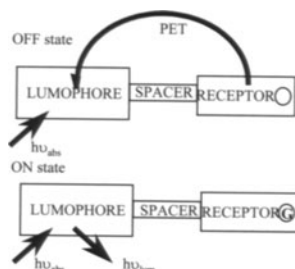
Specialty Keywords: Time resolved fluorescence, Confocal microscopy, Single molecule spectroscopy.

The research group has over the years established an ensemble of techniques with special emphasis on pico second fluorescence decay acquisition and analysis by self developed algorithms (global and compartmental analysis), up-conversion and single molecule spectroscopy. The group has set up tools to down scale in size and in time the object of the photochemical and photophysical study.

M. Lor, R. De, S. Jordens, G. De Belder, G. Schweitzer, M. Cotlet, J. Hofkens, T. Weil, A. Herrmann, K. Müllen, M. Van der Auweraer, F.C. De Schryver J. Phys. Chem., 106, 10, 2083-2090 (2002) T. Vosch, J. Hofkens, M. Cotlet, F. Köhn, H. Fujiwara, R. Gronheid, K. Van Der Biest, T. Weil, A. Herrmann, K. Müllen, S. Mukamel, M. Van der Auweraer, F.C. De Schryver Angew. Chem., 40, 4643-4648 (2001).

Date submitted: 18th June 2002

Amilra P. de Silva, Ph.D.



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Specialty Keywords: Luminescent sensors, Molecular logic.

We helped to establish the general principle of luminescent/fluorescent photoinduced electron transfer (PET) sensors which is now widely used. This principle is shown illustrated above where a guest G is being sensed by switching 'on' of luminescence. Such sensors can monitor protons, several metal ions, several anions as well as some larger molecular species. We also published the first work on molecular logic gates in the primary literature. This area also receives increasing attention since it permits molecules to process information with a growing complexity.

Date submitted: 15th August 2002

Soma De, Ph.D.



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Specialty Keywords: Macular degeneration, Lipofuscin,
Membrane Mimics.

Accumulation of lipofuscin in retinal pigment epithelial (RPE) cells constitute a predicament for the development of age-related macular degeneration. My research focuses on how A2E, a component of lipofuscin, causes the cellular membrane damage and induces the apoptosis of RPE cells. I have also applied fluorescence spectroscopy extensively to study the membrane properties of several synthetic dimeric lipid systems.

S. De and T. P. Sakmar, (2002). Interaction of A2E with model membranes. Implications to the pathogenesis of age-related macular degeneration. *J. Gen. Physiol.* **120**, 147-157. S. Bhattacharya and S. De, (1999). Synthesis and vesicle formation from dimeric pseudoglycerol lipids with (CH₂)_m spacers: Pronounced *m*-Value dependence of thermal properties, vesicle fusion, and cholesterol complexation. *Chem. - A Eur. J.* **5**, 2335-47.

Date submitted: 27th August 2002

Todor G. Deligeorgiev, Ph.D.



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Specialty Keywords: Dye synthesis, Fluorescence, Bioapplications of fluorescent probes.

In the last years our research were directed towards the synthesis of novel nucleic acid dyes based mainly on Thiazole Orange and Oxazole Yellow chromophores as non-covalent fluorescent probes. We are also interested in development of novel calcium probes based on coumarin fluorophores. Some analytical bioapplications of the novel probes were investigated too.

Liepour F, Deligeorgiev TG, Veneti Z, Savakis C, Katerinopoulos HE, Near-membrane iminocoumarin-based low affinity fluorescent Ca²⁺ indicators, *Cell Calcium* **31**(5) (2002) 221-227.

Demas, J. N.
Demchenko, A. P.

Date submitted: 25th August 2003

James N. Demas, Ph.D.



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Department of Chemistry,
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www.people.virginia.edu/~jnd/

Specialty Keywords: Coordination compounds, Luminescence, Sensors.

We are designing, synthesizing, and applying highly luminescent Ru, Os, Ir, and Re complexes with α -diimine ligands. Applications are as molecular reporters and analytical sensors (e.g., O₂ and pH) with special focus on the role of the support in modulating and controlling sensing properties. We are also developing instrumentation and data analysis methods.

J. N. Demas, B. A. DeGraff, P. Coleman (1999). Oxygen sensors based on luminescence quenching, *Anal. Chem.* **71**, 793A-800A.

R. D. Bowman, K. A. Kneas, J. N. Demas, A. Periasamy (2002). Conventional, confocal, and two-photon fluorescence microscopy investigations of polymer-supported oxygen sensors", *Microscopy and Microanalysis*, **211**, 112-120.

Date submitted: 1st August 2003

Alexander P. Demchenko, Ph.D., D.Sc.

Research Institute for Genetic Engineering and Biotechnology,
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Specialty Keywords: Protein and membrane fluorescence, Red-Edge effects, New fluorescence probes.

Based on Red-Edge effects together with other site-selectivity and inhomogeneous broadening effects in fluorescence a new methodology was developed for the studies of protein and biomembrane dynamics. These effects and their coupling with the dynamics of molecular relaxations were demonstrated for excited-state reactions of intramolecular electron and proton transfer. A new generation of two-color ratiometric fluorescence probes and sensors was developed based on 3-hydroxychromones and applied in protein and biomembrane research. Other research interests include protein folding, mechanisms of protein-ligand interactions and of the functioning of molecular chaperones.

Date submitted: 22nd August 2002

John J. Devaney



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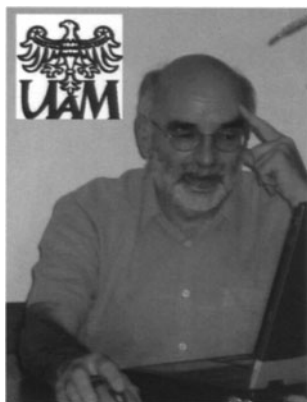
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Specialty Keywords: TCSPC, Spectroscopy, Photodetection.

Instrumentation Engineer at Boston Electronics Corporation, North American agents for Becker & Hickl GmbH of Berlin, Germany and for Edinburgh Instruments Ltd of Edinburgh, Scotland. Specialist in monochromators and spectrometers.

Date submitted: 27th August 2002

Andrzej T. Dobek, Ph.D.



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Specialty Keywords: Molecular biophysics, Photobiology,
Ultra-fast laser spectroscopy.

Current Research Interests: Transient absorption, fluorescence and photovoltage studies of primary events in photosynthesis, static and dynamic light scattering in biomacromolecular solutions, nonlinear light scattering in solution of macromolecules oriented by DC magnetic field and optical field.

K.Gibasiewicz, R.Naskręcki, M.Ziółek, M.Lorenc, J.Karolczak, J.Kubicki, J.Goc, J.Miyake, and A.Dobek (2001). Electron transfer in the reaction center of the photosynthetic bacterium *Rh.sphaeroides* R-26 measured by transient absorption in the blue spectral range, *J.Fluorescence* **11**, 37-44.

G.Paillotin, W.Leibl, J.Gapiński, J.Breton and A.Dobek (1998). Light gradients in spherical photosynthetic vesicles, *Biophys.J.* **75**, 124-133 (1998).

Dong, W-J.
Doroshenko, A. O.

Date submitted: 10th July 2002

Wen-Ji Dong, Ph.D.

Biochemistry and Molecular Genetics,
University of Alabama at Birmingham, MCLM 487,
1918 University Boulevard,
Birmingham, AL, 35294-0005, USA.
Tel: 205 934 2269 Fax: 205 975 4621
wdong@uab.edu

Specialty Keywords: Fluorescence, Kinetics, Cardiac thin filament protein.

The primary focus of my current research involves the application of fluorescence spectroscopy combining with molecular biology approaches in study of cardiac thin filament proteins and bioassay development, including study of calcium activation mechanism of cardiac muscle; elucidation of structure-function relationship within thin filament; and development and application of novel fluorescence and luminescence assay for biological studies and high throughput drug screening.

Dong *et al.* "Ca²⁺ induces an extended conformation of the inhibitory region of troponin I in cardiac muscle troponin." *J. Mol. Biol.* 314:51-61 (2001). 2. Dong *et al.* "A kinetic model for the binding of Ca²⁺ to the regulatory site of troponin from cardiac muscle." *J. Biol. Chem.* 272:19229-19235 (1997).

Date submitted: 7th May 2002

Andrey O. Doroshenko, D.Sc., Ph.D.



Department of Physical Organic Chemistry,
Institute for Chemistry at
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4 Svobody sqr., Kharkov, 61077,
Ukraine.

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andrey.o.doroshenko@univer.kharkov.ua

Specialty Keywords: High Stokes shift organic luminophores.

Design and investigation of abnormally high Stokes shift organic fluorescent species: Sterically hindered aromatic heterocyclic molecules, excited state intramolecular proton transfer (ESIPT) compounds, cation-sensitive fluorescent probes, fluorescent probes for biomembrane studies. Elucidation of interrelations between the molecular structure and photophysical properties of organic compounds. Photochemical transformations of organic molecules. Quantum chemical modeling related to fluorescent and photochemical ability of organic luminophores.

Doroshenko A.O., Posokhov E.A., Verezubova A.A., Ptyagina L.M., Skripkina V.T., Shershukov V.M. 2002, Photochem. Photobiol. Sci., 1, 92-99.

Doroshenko A.O., Baumer V.N., Verezubova A.A., Ptyagina L.M. 2002, J. Mol. Struct., 609, 29-37.

Date submitted: 9th August 2002

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P.Douglas@swan.ac.uk

Specialty Keywords: Porphyrins, Optical sensors, Photographic dyes.

Photochemical research interests: Photodegradation mechanisms of photographic and textile dyes, photochemistry on thin film TiO₂, luminescent oxygen sensors, thin film optical sensors for medical industrial and environmental applications, photochemistry of porphyrins and metalloporphyrins, colloidal photochemistry electrochemistry and reaction kinetics.

C.D.Geddes and P.Douglas, Fluorescent dyes bound to hydrophilic copolymers - applications for aqueous halide sensing, (2000), *App. Poly. Sci.*, **76**, 603-615.

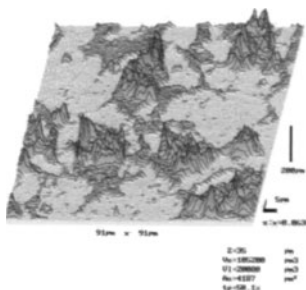
P.Douglas and K.Eaton, Response characteristics of thin film oxygen sensors, Pt and Pd Octaethylporphyrins in polymer films, (2002) *Sens. Actuators B*, 200-208.

Date submitted: 29th August 2003

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Germany.

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Specialty Keywords: Cell stressing, Nanocrystals, Subcellular Structures.

My research is focused on analysing cellular stress responses by means of fluorescence microscopy and scanning probe microscopy. Especially we are interested in new organic fluorescent labels as well as luminescent nanocrystals (Qdots). The development of nanostructured substrates in fluorescence-based bioanalytical devices also is a main working area of our group.

Dressler C, Eberle H-G, Beuthan J, Müller G. 2002. Microscopic techniques in bioanalytics and microseparation of cellular systems. In: *Optoelectronics applications in medicine, food technology and environmental protection*; pp. 95-103; Ecomed Verlagsges., Landsberg
Eberle H-G, Dressler C, Oertel H, Beuthan J, Müller G (2002). On the use of Si-based nanohole arrays as near-field biochips. *Quantum Electronics* **32**: 999-1002.

Drexhage, K. H.
Dryden, D. T. F.

Date submitted: 10th July 2002



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drexhage@atto-tec.com

Specialty Keywords: Fluorescence, Organic Dyes,
Fluorescent Labels.

Research Interests: My research is centered around the process of light emission by molecules and the influence of molecular structure on fluorescence. Research topics are: Inter- and intramolecular energy transfer, influence of a mirror on decay time and directional characteristics of fluorescence, cooling by anti-Stokes fluorescence, laser dyes, development of fluorescent labels for biochemistry and medicine.

J. Arden-Jacob, J. Frantzeskos, N.U. Kemnitzer, A. Zilles, and K.H. Drexhage (2001). New fluorescent markers for the red region, *Spectrochim. Acta A*, **57**(11), 2271-2283.

Date submitted: 30th August 2002



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www.chem.ed.ac.uk/staff/dryden.html & www.cosmic.ed.ac.uk/

Specialty Keywords: Protein-DNA interactions, Fluorescence spectroscopy, Single-molecule imaging.

I am interested in all aspects of protein and DNA structure and dynamics with particular emphasis on combining physical and biological techniques at the "interface" between the physical and life sciences.

M.D. Walkinshaw, P. Taylor, S.S. Sturrock, C. Atanasiu, T. Berge, R.M. Henderson, J.M. Edwardson, and D.T.F. Dryden. Structure of Ocr from Bacteriophage T7, a Protein that Mimics B-Form DNA. *Molecular Cell* [2002] **9**, 187-194.

The DNA binding characteristics of the trimeric *Eco*KI methyltransferase and its partially assembled dimeric form determined by fluorescence polarisation and DNA footprinting. L.M. Powell, B.A. Connolly & D.T.F. Dryden. [1998] *J. Mol. Biol.* **283**, 947-961.

Date submitted: 16th May 2003

Guy Duportail, Ph.D.



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Specialty Keywords: Biophysics, Liposomes, Fluorescent Probes.

Field of research is membrane biophysics by using fluorescence spectroscopy methods. The different topics of interest so far considered are: Membrane photophysics, development of liposomes as mimicking membrane systems, conception and study of novel fluorescent probes for biomembranes (DPH, Pyrene and 3-Hydroxyflavone derivatives), physicochemistry of the processes of non-viral transfection by cationic lipids, lipid microdomains (rafts).

G. Duportail, and P. Lianos (1996) in *Vesicles*, Surfactant Science Series, Vol. 62 (M. Rosoff Ed.), Marcel Dekker, New York, pp. 295-372.

A.S. Klymchenko, G. Duportail, T. Ozturk, V.G. Pivovarenko, Y. Mély and A.P. Demchenko (2002) *Chemistry and Biology*, **9**:1196-1208.

Date submitted: 16th September 2003

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Universitätsstraße 31,
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Specialty Keywords: Ruthenium Complexes, Europium Complexes, DNA-Intercalators, Lanthanides, Labels, H₂O₂.

Our research includes the synthesis of new luminescent ruthenium metal ligand complexes which can be conjugated to functional groups in biomolecules. We use of the complexes in various bioassay-formats (e.g. FRET-Immunoassays, FRET-assays of DNA-Oligonucleotides) or as DNA-Intercalators. Further research is done about the use of luminescent europium complexes for the analysis of hydrogen peroxide in aqueous solutions as well as in enzymatic assays.

Europium Ion-Based Luminescent Sensing Probe for Hydrogen Peroxide, Wolfbeis, O. S., Dürkop, A., Wu, M., Lin Z. (2002), *Angew. Chem. Intl. Ed. Engl.*, (2002), **41**, 23, 4495.

Polarization immunoassays using reactive ruthenium metal ligand complexes as labels, Dürkop, A., Lehmann, F., Wolfbeis, O. S. (2002), *Anal. Bioanal. Chemistry*, **372**: 688-694.

Dyubko, T. S.
Eaton, K.

Date submitted: 29th August 2003

Tatyana S. Dyubko, Ph.D.



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www.geocities.com/tdyubko2003/index.htm

Specialty Keywords: Fluorescence, Biophysics, Cryobiology.

The main research ones is including: (1) development of fluorescent probe methods and its application to determination of human serum proteins and biological membranes structural rearrangements after non-physiological conditions action (low temperatures, laser and ionizing radiation etc.) and under some human diseases; (2) testing of new fluorescent dyes with aim of its application in biology and medical diagnostics; (3) investigation of molecular mechanisms of cell membranes cryodamages and cryoprotection. Author of more 135 scientific works.

Dyubko T.S. Cell membrane cryodamages according to spectroscopy of fluorescent probes data. Journal of Biosciences, 1999, v. 24, suppl. 1, p. 248.

Romodanova E.A., Dyubko T.S. et al. MNBIS as marker of protein macrostructure changes. Bulletin of KhNU, No 570. Ser. Radiophysics and Electronics, 2002.Is. 2, p. 302.

Date submitted: 9th August 2002

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cmsolar@swan.ac.uk

Specialty Keywords: Optical oxygen sensors, Redox chemistry, Luminescence quenching.

Research interests: The development of novel luminescence and redox based optical oxygen sensors. Dye redox chemistry. Steady-state and time-resolved studies of metalloporphyrin luminescence quenching by oxygen. Kinetic modelling of oxygen quenching of luminescence in heterogeneous thin polymer films.

K. Eaton, A novel colorimetric oxygen sensor: dye redox chemistry in a thin polymer film, (2002), Sens. and Actuators B, **85**, 42-51.

P.Douglas and K.Eaton, Response characteristics of thin film oxygen sensors, Pt and Pd Octaethylporphyrins in polymer films, (2002) Sens. Actuators B, **82**, 200-208.

Date submitted: 9th July 2002

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www.hhmi.org/research/investigators/ebright.html

waksman.rutgers.edu/Waks/Ebright/ebright.html

Specialty Keywords: Transcription, Labelling strategies, FRET, FP, Single molecule nanomanipulation, Single-molecule imaging.

Our group is interested in the first step in gene expression: i.e., transcription. Our objectives are: (i) to understand the structural and mechanistic basis of transcription initiation, (ii) to understand the structural and mechanistic basis of transcription activation, and (iii) to develop inhibitors of transcription initiation and transcription activation.

J. Mukhopadhyay, A. Kapanidis, V. Mekler, E. Kortkhonjia, Y. Ebright, and R. Ebright (2001) Translocation of σ^{70} with RNA polymerase during transcription: fluorescence resonance energy transfer assay for movement relative to DNA. *Cell* **106**, 453-463.

V. Mekler, E. Kortkhonjia, J. Mukhopadhyay, J. Knight, A. Revyakin, A. Kapanidis, W. Niu, Y. Ebright, R. Levy, and R. Ebright, R. (2002) Structural organization of RNA polymerase holoenzyme and the RNA polymerase-promoter open complex. *Cell* **108**, 599-614.

Date submitted: 1st September 2002

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homepages.uni-tuebingen.de/hans-joachim.egelhaaf/

Specialty Keywords: Thin organic films, Molecular mobility, Fluorescence anisotropy.

Translational and rotational molecular mobilities in liquid-swollen polymers are investigated by steady-state and time-resolved fluorescence techniques (mainly quenching and anisotropy) in order to understand and control the accessibilities of polymer-bound active centers.

Photoinduced processes (e.g., charge carrier generation and recombination) in thin organic films of π -conjugated polymers are studied by steady-state and time-resolved absorption, fluorescence, and photoconductivity in order to elucidate the kinetics and mechanisms of these processes.

H.-J. Egelhaaf, D. Oelkrug, P. Herman, E. Holder, H.A. Mayer, E. Lindner (2001) *J. Mater. Chem.* **11**, 2445 – 2552.

G. Cerullo, G. Lanzani, S. deSilvestri, H.-J. Egelhaaf, L. Lüer, D. Oelkrug (2000) *Phys. Rev. B* **62**, 2429.

Date submitted: 12th August 2002

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Specialty Keywords: Energy Transfer, Lanthanides, Fluorescent probes.

Investigation of intramolecular energy transfer from organic compounds to lanthanide ions. Optimization of conditions for the formation fluorescent complexes of organic compounds with lanthanide ions in solutions and on solid surfaces. Elucidation of interaction between molecular structure of organic ligands and fluorescent properties of investigated complexes. Design of fluorescent system for determination of drugs and fluorescent probes for fluoroimmunoassay.

A.Egorova, S.Beltyukova, O.Teslyuk, V.Karpinchik. J.Pharm. Biomed. Anal.,24 (2001) 1081-1085.

S.Beltyukova, O.Teslyuk, A.Egorova, E.Tselik. J. of Fluorescence, Vol.12, №2 (2002), 269-272.

Date submitted: 24th May 2003

Benjamin Ehrenberg, Ph.D.



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Specialty Keywords: Fluorescent probes, Photosensitizers, Porphyrins in membranes and cells.

We study the interactions of porphyrins and porphyrin-like molecules with artificial and natural membranes. The porphyrins are considered for use as photosensitizers for photodynamic therapy of malignancies and bacterial eradication. The aim of these studies is to understand the binding efficiency and topography of porphyrin sensitizers in membranes and to correlate these attributes with molecular structure. The extent of interaction, the depth of membrane-penetration and the efficiency of sensitized generation of singlet oxygen are monitored by fluorescence techniques.

Kępczyński M, Pandian RP, Smith KM, Ehrenberg B. 2002. Do liposome-binding constants of porphyrins correlate with their measured and predicted partitioning between octanol and water? Photochem. Photobiol.: 76, 127-134.

Date submitted: 31st July 2003

Jörg Enderlein, Ph.D.

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Specialty Keywords: Single molecule fluorescence, Nanooptic.

Jörg Enderlein is an expert on ultrasensitive and single-molecule fluorescence spectroscopy. While working with PicoQuant GmbH in Berlin, he was involved in the development of pulsed laser systems and high-speed electronics applicable to single-molecule fluorescence spectroscopy. Since 2001, he is a Heisenberg Fellow of the Deutsche Forschungsgemeinschaft and head of the Single-Molecule Biophysics group at the Forschungszentrum Jülich.

C. Zander, J. Enderlein, R. A. Keller (Eds.) *Single-Molecule Detection in Solution - Methods and Applications* (VCH-Wiley, Berlin/New York, 2002).

Date submitted: 4th July 2002

Yves Engelborghs, Ph.D.



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www.chem.kuleuven.ac.be/research/bio/webye_en.html

Specialty Keywords: Proteins, Tryptophan, Lifetime, Correlation, Confocal, Phase.

Protein dynamics is the main interest. For many proteins single-W mutants were constructed and analyzed by phase fluorimetry and the fluorescence properties related to the environment of the W, and the rotameric state. Conformational changes are studied by kinetic techniques and modeled by "Targeted Molecular Dynamics". Fluorescence Correlation and Cross Correlation and Confocal scanning are used to study protein-protein and protein-nucleic acid and protein-drug interactions in vitro and in the living cell.

Y. Engelborghs (2001) *Spectrochimica Acta Part A* 57, 2255-2270.
E. Van Craenenbroeck et al. (2001) *Biol. Chem.* 382, 355-361.

Epand, R. M.
Erdmann, R.

Date submitted: 14th August 2002

Richard M. Epand, Ph.D.



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Specialty Keywords: Membrane, Hydrophobic, Liposomes.

We are interested in the use of fluorescence to determine membrane properties. We have studied the application of fluorescent probes for monitoring the nature of the membrane interface (1) and have also used fluorescence to identify protein sites that would facilitate membrane binding (2).

R.F. Epand, R. Kraayenhof, G.J. Sterk, H.W. Wong Fong Sang, and R.M. Epand (2002).

Flourescent probes of membrane surface properties. *Biochem.Biophys.Acta* **1284**, 191-195.

D.L. LeDuc, Y.K. Shin, R.F. Epand, and R.M. Epand (2000). Factors determining vesicular lipid mixing induced by shortened constructs of influenza hemagglutinin. *Biochemistry* **39**, 2733-2739.

Date submitted: 30th August 2003

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Germany.

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www.picoquant.com

Specialty Keywords: TCSPC, Single Molecule Detection, FCS, Confocal microscopy, FLIM; μ -plate reader.

Current Status: Managing Director at PicoQuant GmbH.

We focus our R/D on ultra sensitive fluorescence detection methods. Beside the development of components (like compact picosecond diode lasers, PC boards for TCSPC, detector modules) we design complete fluorescence spectrometers for various applications including comprehensive data analysis tools. Furthermore we develop microscope based systems for fluorescence lifetime imaging (FLIM) applications. These systems offer ultimate sensitivity as well as highest spatial resolution as needed for single molecule detection. Beside traditional fluorescence correlation and fluorescence lifetime analysis we work on the combination of both techniques.

Date submitted: 2nd September 2002

Anna M. Eremenko, Ph.D.



National Ukrainian Academy of Sciences,
Institute of Surface Chemistry,
17 General Naumov str,
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Specialty Keywords: Charge transfer, Silica, Photocatalysis.

The scope of scientific interests concerns the problems of surface photochemistry. Fluorescent properties of adsorbed polyacenes on silica, silica-alumina and silica-titania surfaces: Processes of intermolecular charge transfer, decay of fluorescence, formation of excimer, exciplex and CTC on the surfaces. Effect of surface active centers on the intramolecular charge transfer and conformational mobility of adsorbed TICT molecules. Luminescent diagnostic of active centers of silica, and mixed oxides. Sensibilization of titania photocatalysts to the visible with adsorbed excited organic dyes.

A. Eremenko, N.Smirnova, O.Rusina, O.Linnik, L.Spanhel, K.Rechthaler, Photophysical properties of organic fluorescent probes on nanosized TiO₂/SiO₂ systems *J.Mol. Struct.* 2000, 553/1-3, 1.

Date submitted: 30th July 2003

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www.enzyme.chem.msu.ru/eremin/

Specialty Keywords: Fluorescence Polarization immunoassay,
Pesticides, Drugs.

- Development of fluorescence polarization and enzyme immunoassays.
- Development immunoassays in flow system.
- Investigation of influence of chemical structure of tracer on the sensitivity and specificity of immunoassay.

Eremin, S.A.; Smith, D.S. Fluorescence Polarization Immunoassays for Pesticides. *Comb. Chem. High T. SCR.* **2003**, 6(3), 257-266.

A.Yu. Kolosova, J.-H. Park, S.A. Eremin, S.-J. Kang, D.-H. Chung. Fluorescent Polarization Immunoassay Based on a Monoclonal Antibody for the Detection of Organophosphorus Pesticide Parathion Methyl. *J. Agric. Food Chem.* **2003**, 51(5), pp 1107 – 1114.

Erker, W.
Erostyák, J.

Date submitted: 31st July 2002

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Specialty Keywords: Proteins, Hemocyanin, Tryptophans.

My research is focused on the structure-function-relationship of proteins particularly hemocyanins. I am looking for conformational changes, investigating the flexibility and stability of the proteins. This involves energy transfer calculations, ensemble and single-molecule measurements especially with the intrinsic fluorophor tryptophan.

Lippitz M, Erker W, Decker H, van Holde KE, Basché T: Two-photon excitation microscopy of tryptophan containing proteins; Proc. Nat. Acad. Sci. 2002, 99 (5), 2772-2777.

Erker W, Hübler R, Decker H: Multi-donor- and multi-acceptor-quenching of oxy-hemocyanins by Förster transfer; Protein Science 2001, 10 (Suppl. 1), 144.

Date submitted: 22nd July 2003

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Hungary.

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physics.ttk.pte.hu/erostyak/

Specialty Keywords: Dielectric relaxation, Energy transfer,
Integrating sphere.

Present research interests are: Dielectric relaxation of dyes and proteins; Intra- and intermolecular energy transfer; Computer modelling of excited state processes; Analytical applications of dye-trace detection; Development of integrating spheres.
Experimental practice: phase fluorometry, femtospectrometry, laser fluorometry.

A. Buzády, J. Savolainen, J. Erostyák, P. Myllyperkiö, B. Somogyi, J. Korppi-Tommola:
Femtosecond transient absorption study of excitation relaxation of an acrylodan dye in solution and attached to human serum albumin. J. Phys. Chem. B, (2003), 107, 1208-1214.

Date submitted: 29th July 2003

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Faculty of science and arts,
Buca 35160 Izmir,
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Kadriye.yusuf@superonline.com

Specialty Keywords: Optic sensor, Fluorescence spectroscopy.

I'm interested in sensor applications of newly synthesized fluorophores, optical oxygen and Carbon dioxide sensing, investigation of Photophysical and photochemical properties of new fluorophores.

Kadriye Ertekin, Ingo Klimant, Gerhard Neurauder and Otto S. Wolfbeis, Characterization of a reservoir-type capillary optical microsensor for pCO₂ measurements. *Talanta*, 59 261-267 (2003).

Ertekin, K., Karapire, C., Alp S., Yenigül B., Içli S., " Photophysical and photochemical characteristics of an azlactone dye in sol-gel matrix; a new fluorescent pH indicator" *Dyes and Pigments* 56 125-133 (2003).

Date submitted: 29th August 2002

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Specialty Keywords: Fluorescence Energy Transfer, Polymers, Colloids.

Study of polymer and colloidal systems using fluorescence techniques. Use of excimer formation to study the dynamics of polymer chains in solution. Study of the interface structure, colloidal particles (latex, micelles, etc) and in polymer films using non-radiative energy transfer [Ref 1,2]. Synthesis and dye-labeling of polymers. Modeling of the energy transfer kinetics in dispersed colloidal particles, polymer blend films, and other structured materials. Modeling of the diffusion in dye-labeled latex films. Static and dynamic (ps resolution) fluorescence measurements.

Farinha, J. P. S. et al *J. Phys. Chem. B* **1999**, 103, 2487.

Farinha, J. P. S. et al *J. Phys. Chem.* **1996**, 100, 12552.

Felekyan, S. S.
Feller, K.-H.

Date submitted: 4th July 2002



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www.mpibpc.gwdg.de/abteilungen/010/seidel/

Specialty Keywords: FCS, BIFL, FRET.

"Multidimensional single molecule fluorescence spectroscopy of biomolecules:
Screening applications and time-resolved investigation on biological processes".

Date submitted: 23rd July 2003



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Specialty Keywords: J aggregates.

Time-resolved fluorescence and pump-probe spectroscopy of polymethine J aggregates have been the main scientific area of interest during the last 15 years. The contribution of exciton-exciton annihilation as well as higher exciton manifolds to the overall-desactivation process of excited J aggregates and their perspective usage as fast opto-optical switches due to this stabilizing effects is the main result of the research done. The results have been generalized from linear aggregate structures to multidimensional structures including helix structures and nanorods.

H. Glaeske, V. A. Malyshev, K.-H. Feller, Effects of higher exciton manifolds and exciton exciton annihilation ... in...linear Frenkel chains, Phys. Rev. A 65, 33821 – 33832 (2002).

Date submitted: 23rd August 2002

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Specialty Keywords: Sol-Gel, Bioencapsulation, Fluorescence sensing.

My research is focused on the preparation of organically modified silicates (Ormosils) through the sol-gel method for optical applications. I have studied the chemical properties of the porous surface of Ormosils through fluorescence spectroscopy. More recently, I am interested on the encapsulation of biomolecules in sol-gel matrices and on the study of the structural integrity, activity and fluorescence sensing applications of the encapsulated biomolecules.

M.L. Ferrer, F. del Monte and D. Levy (2001) Microviscosities at the Porous Cage of Silica Glasses and Ormosils through Fluorescence Anisotropy J. Phys. Chem. B 105 (45) 11076-11080.

M.L. Ferrer, J. Gomez, C. R. Mateo, F. del Monte and D. Levy (2003) Denaturation Studies of Horseradish Peroxidase Encapsulated in Sol-Gel Matrices. J. Sol-Gel Sci. & Tech. (in press).

Date submitted: 29th August 2002

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Affiliated: Brown University, Providence, R.I. 02912, USA.

Specialty Keywords: TR Fluorescence, Excitation Energy Transfer, Photo-induced Intramolecular Processes.

Graduated from Charles University in Prague, long-term stays at the Royal Institution, London, UK, at IMS Okazaki, Japan, and at University of Chicago, USA; currently with CTU in Prague, Czech Republic & affiliated with Brown University, Providence, USA.

Current topics of primary interest: Ultrafast TR fluorescence, kinetics and anisotropy; Intramolecular energy & electron transfer and re-distribution; Photo-physics of molecular switching.

V. Fidler, P. Kapusta, M. Nepras, J. Schroeder, I.V. Rubtsov, and K. Yoshihara (2002). Femtosecond Fluorescence Anisotropy Kinetics as a Signature of Ultrafast Electronic Energy Transfer in Bichromophoric Molecules: *Z. Phys. Chem.*, **216**, 589-603.

Fidy, J.
Fischer, P.

Date submitted: 12th September 2002

Judit Fidy, D.Sc., Ph.D.



Dept. of Biophysics and Radiation Biology,
Semmelweis University,
Puskin u. 9, Budapest,
H-1088, Hungary.
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judit@puskin.sote.hu

Specialty Keywords: Protein dynamics, Aggregation, Folding.

Research interests: Prof. Fidy's interest in protein dynamics started by detailed fluorescence line narrowing studies on hemoproteins. On this basis she initialized a collaboration with Prof. J. Friedrich (Bayreuth, D.) to perform the first spectral hole burning studies under high pressure on a protein. Since 1993 she has her own research lab in Budapest equipped with FLN, various luminescence methods, cryostats, high pressure cells and computer capacity for molecular modeling. They study the connection between protein dynamics and functionality.

J. Fidy et al., invited review, BBA, (1998) **1386**, 289-303.

L. Smeller, J. Fidy, Biophys.J. (2002) **82**, 426-436.

Date submitted: 28th August 2002

Peter Fischer



JenLab GmbH.,
Winzerlaer Strasse 2a,
Germany.

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www.jenlab.de

Specialty Keywords: Multiphoton imaging, FRET, Fluorescence lifetime imaging, Optical biopsy, Drug screening.

R/D is focussed on femtosecond laser systems for biotechnology, cell biology and medicine. Products include the multiphoton fluorescence imaging system *DermaInspect 100* for skin diagnostics and drug screening and the scanning microscope *TauMap* for fluorescence lifetime imaging including time-resolved FRET. In addition, miniaturized low-cost sterile cell chambers for long-term fluorescence microscopy and GFP imaging (*MiniCeM*) and fluorescent markers *JenFluor* for enzyme detection (e.g. alkaline phosphatase) are produced. Current development includes systems for nanosurgery with sub-200nm-cut sizes combined with imaging.

König et al. Optics Express 10(2002)171-176.

König et al.: SPIE Proceed 4620(2002)191-201.

Date submitted: 13th September 2002

Jacek J. Fisz, Ph.D.



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Specialty Keywords: Molecular fluorescence, Photochemistry,
Photovoltaic systems.

Research fields: One- and two-photon excitation spectroscopy of solutions and organized media, evanescent wave excitation fluorescence and second-harmonic generation on organized molecular assemblies, excited-state processes in solutions and organized media, structural and dynamic properties of ordered molecular media, time-resolved fluorescence spectroscopy with polarized light.

J.J. Fisz, M.P. Budzinski, Fluorescence depolarization in organized media. Two-excited-state reactions controlled by orientation-dependent kinetic rates. I. Theory, J. Chem. Phys. 115 (15) (2001) 7130-7143.

J.J. Fisz, A method for visual and numerical recovery of state-dependent character of fluorophore-matrix aligning interactions, Chem. Phys. Letters 355 (2002) 94-100.

Date submitted: 17th June 2002

Danuta Frąckowiak, (Jabłoński) Ph.D.



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www.put.poznan.pl

Specialty Keywords: Polarized light spectroscopy.

Current Research: 1) Investigations of the fate of absorbed energy in photosynthetic organisms, in their parts and in their anisotropic models by the measurements of polarized light fluorescence, delayed fluorescence and steady state photoacoustic spectra. The evaluation of the yield of triplet states generation using laser induced optoacoustic spectroscopy. 2) The measurements of the fluorescence of various dye-photosensitizers in healthy and cancerous cells as well as of the endogenous emission of stained cell material are due in order to select dyes suitable for photodynamic therapy and photodynamic diagnosis of cancer. From emission of irradiated stained cells the courses of photoreactions are established.

D.J. Qian, A. Planner, J. Miyake, D. Frąckowiak (2001). Photothermal effects and fluorescence spectra of tetrapyridylporphyrins, J. Photochem. Photobiol. A: Chemistry, **144**, 93-99.

Galitonov, G. S.
Ganesan, A.

Date submitted: 30th August 2002

Gerasim Stoychev Galitonov, Ph.D.



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Gierasim@yahoo.com
www.fuw.edu.pl

Specialty Keywords: Fluorescence, Enzyme-ligand interactions,
State-of-the-art equipment.

Some of my interests are: Ligand tautomeric form identification and charge distribution in enzyme complexes by steady-state quenching. Rotamer identification in enzyme complexes by FRET, time-resolved and anisotropy measurements. Fluorescence and phosphorescence art-of-the-state equipment. Analysis of human genome sequences.

Stoychev G., Kiedaszuk B. & Shugar D. (2001) Interaction of *E. coli* PNP with the cationic and zwitterionic forms of the fluorescent substrate m⁷Guo, *BBA*, **1544** (1-2) 74-88.

Stoychev G., Kiedaszuk B. & Shugar D. (2002) Xanthosine and xanthine: Substrate properties with PNP, and relevance to other enzyme systems, *Eur J Biochem*, **269** (16) 4048-4057.

Date submitted: 29th April 2002

Ashok Ganesan, M.Sc.



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Scotland, UK.

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Specialty Keywords: Multiphoton, Melanin, Urocanic acid.

My research interest includes multiphoton induced fluorescence studies of skin chromophores. Areas of study encompasses: one- and multiphoton excited, time resolved fluorescence spectroscopy of melanin and urocanic acid isomers.

Date submitted: 29th August 2002

Fang Gao, Ph.D.



University of Tennessee,
Department of Chemistry,
Buehler Hall 608,
Knoxville, TN 39776-1600, USA.
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Specialty Keywords: Dye synthesis, Photochemistry &
Photophysics, Polymer.

Dr. Fang Gao is a research scientist at the University of Tennessee, Knoxville. His research mainly focuses on the synthesis of dyes and polymer resin, photopolymer and photochemistry. Now, he is doing the asymmetrical photochemistry. He has authored 26 journal papers. He has established his international position in these fields.

Fang Gao, Robert N. Compton, Richard M. Pagni, The mutiphoto photochemistry of 2-iodooctane in methanol, *Chemical Communications*, 2003, 1584-1585.

Fang Gao, David Boyles, Rodney Sullivan, Robert N. Compton, Richard M. Pagni, The Photochemistry of racemic and resolved 2-iodooctane. The effect of solvent polarity and viscosity on the chemistry, *Journal of Organic Chemistry*, 2002, 67 (26), 9361-9367.

Date submitted: 9th August 2002

Michael S. Garley, Ph.D.

Chemistry Department,
University of Wales Swansea,
Singleton Park, Swansea,
SA2 8PP, UK.
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M.S.Garley@swan.ac.uk

Specialty Keywords: Computer modelling, Chemical kinetics.

Research interests: Chemical kinetics, computer modelling, time resolved fluorescence and phosphorescence.

R.J.Berry, P.Douglas, M.S.Garley, D.Clarke, C.Winscom, Triplet energies, singlet-state properties and singlet oxygen quenching rate constants and quantum yields for two cyan azamethine dyes (1999), *J.Photochem.Photobiol.A.*, **120**, 29-36.

H.N.McMurray, P.Douglas, C.Busa and M.S.Garley, Oxygen quenching of tris(2,2'-bipyridine) ruthenium (II) in thin organic films, (1994) *J.Photochem.Photobiol.A.*, **80**, 283-288.

Gatash, S. V.
Gazit, E.

Date submitted: 13th September 2002

Sergiy V. Gatash, Ph.D.



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School of Radiophysics,
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Sergiy.V.Gatash@univer.kharkov.ua

Specialty Keywords: Fluorescence spectroscopy, Hydrophobic and hydrophilic fluorescence probes.

Current Research Interests: My research is focused on investigation by means of fluorescence probes the conformation transitions of protein macromolecules especially fibrinogen and serum albumin. I also study the influence of physical factors such as temperature and irradiation on conformation and function macromolecules and biological membranes.

Gatash et al., Influence of irradiation and low temperatures on structure-dynamical state of blood proteins. // Biophysical Bulletin, Issue 2 (11), (Visn. Khark. univ.)-2002.- p.46-49.

Andreeva et al., Influence of freezing on spectral properties of fibrinogen solutions. //Problems of Cryobiology, 1998, No 3, pp. 18-21.

Date submitted: 7th July 2002

Ehud Gazit, Ph.D.



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Tel-Aviv 69978,
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www.tau.ac.il/lifesci/biotechnology/gazit/gazit.htm

Specialty Keywords: Protein Folding, Unfolding, and Misfolding.

In our lab we study protein folding, unfolding and misfolding using a variety of biochemical and biophysical techniques. A partial list of the experimental systems includes several bacterial toxin-antidote systems, type II diabetes-related amyloidogenic peptides, and the VHL tumor suppressor protein. Another line of research is directed toward the elucidation of the mechanism of “chemical chaperons” activity and their effect on folding, aggregation and amyloid formation.

Gazit, E. (2002) *Angew. Chem. Int. Ed.* 114, 257-259.

Gazit, E. (2002) *FASEB J.* 16, 77-83.

Date submitted: 20th August 2003

Chris D. Geddes, Ph.D.



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Specialty Keywords: Principles of Fluorescence, Fluorescence Sensing, Metal-Enhanced Fluorescence, Radiative Decay Engineering.

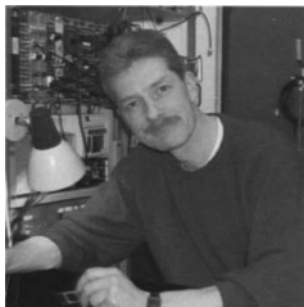
Current Research Interests: The interactions of metallic surfaces with fluorophores, recently termed Radiative Decay Engineering and also Metal-enhanced Fluorescence. I am particularly interested in how modifications of radiative decay rates and/or excitation rates can effect fluorescence phenomenon, such as RET and MPE fluorescence.

C. D. Geddes, H. Cao, I. Gryczynski, Z. Gryczynski, J. Fang and J. R. Lakowicz (2003), Metal enhanced fluorescence due to silver colloids on a planar surface. Potential applications of Indocyanine green to In Vivo imaging, J. Phys Chem. A., **107**, 3443-3449.

C. D. Geddes, A. Parfenov, I. Gryczynski and J. R. Lakowicz (2003). Luminescent blinking from silver nanostructures, J. Phys Chem. B., **107**(37), 9989-9993.

Date submitted: 19th August 2003

Hans C. Gerritsen, Ph.D.



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Netherlands.

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Specialty Keywords: FLIM, SPIM, CLSM, TPE.

Main areas of research are the development and application of new methodologies in fluorescence microscopy. This includes

Fluorescence Lifetime Imaging, Spectral Imaging, FRET imaging, Single Molecule Imaging and Multi-Photon Excitation imaging. In addition work is carried out on the characterization of fluorescent probes and novel fluorescent markers such as quantum dots and fluorescent colloids. Applications include live cell imaging, ion concentration imaging and FRET based co-localization studies. Quantitative pH imaging in cells using confocal fluorescence lifetime imaging microscopy. R. Sanders et al. (1995) Anal. Biochem., **227**, 302-308.

Photooxidation and photobleaching of single CdSe/ZnS quantum dots probed by room-temperature time-resolved spectroscopy. van Sark et al. (2001) J.Phys.Chem. B **105**, 8281-8284.

Date submitted: 13th May 2002

Ken P. Ghiggino, Ph.D.

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Specialty Keywords: Ultrafast spectroscopy, Fluorescence imaging, Polymer photophysics.

Current interests: Studies of energy and electron transfer in multichromophoric assemblies using ultrafast spectroscopy techniques. Relaxation dynamics and energy migration in macromolecules studied by time-resolved fluorescence anisotropy measurements. Photophysics and time-resolved fluorescence imaging of photosensitizers for phototherapy.

T.A. Smith, D.J.Haines and K.P. Ghiggino (2000) Steady-state and time-resolved fluorescence polarization behaviour of acenaphthene, *J. Fluorescence* **10**, 365-373.

E.K.L. Yeow, K.P. Ghiggino, J.N.H. Reek, M.J. Crossley, A.W. Bosman, P.H. Schenning and E.W. Meier (2000) The dynamics of electronic energy transfer in novel multiporphyrin functionalized dendrimers: A time-resolved fluorescence anisotropy study, *J. Phys. Chem. B* **104**, 2596–2606.

Date submitted: 29th July 2003

Agustina Gómez-Hens, Ph.D.



Analytical Chemistry Department, University of Córdoba,
Anexo C-3, Campus of Rabanales,
Córdoba, E-14071,
Spain.

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Specialty Keywords: Lanthanides, Kinetic methodology,
Fluoroimmunoassays.

The research interest involves the development of fluorimetric analytical methods using lanthanide ions, long wavelength fluorophores, immunoassay techniques such as fluorescence polarization immunoassay, kinetic methodology with stopped-flow mixing technique and dry reagent technology. The usefulness of the proposed methods is shown by their application in clinical, pharmaceutical, food and environmental analysis.

A. Gómez-Hens, M.P. Aguilar-Caballo (2002) Terbium-sensitized luminescence: a selective and versatile analytical approach *Trends Anal. Chem* **21** (2), 131-141.

A. Gómez-Hens, M.P. Aguilar-Caballo (2003) Stopped-flow fluorescence polarization immunoassay *Comb. Chem. High T. Scr.* **6**, 177-182.

Date submitted: 25th August 2003

Cees Gooijer, Ph.D.



Analytical Chemistry & Applied Spectroscopy, Laser Centre,
Vrije Universiteit Amsterdam,
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1081 HV, The Netherlands.
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www.chem.vu.nl/acas/

Specialty Keywords: High-resolution molecular fluorescence,
Phosphorescence detection in LC and CE, Time-resolved laser
fluorescence, Temperature jump.

Applied spectroscopy research is conducted in the Laser Centre Vrije Universiteit along an analytical chemistry line – in close cooperation with chromatographers with emphasis on hyphenated techniques – and a physical chemistry line focusing on the dynamics of the interaction between small molecules and (bio)macromolecules. Research topics are hyphenation of Raman spectroscopy and LC/CE; phosphorescence detection in CE; laser fluorescence detection including FRET; temperature jump/time-resolved fluorescence and cryogenic high-resolution molecular fluorescence.

Kuijt, J., Arraez Roman, D., Ariese, F., Brinkman, U.A.Th., Gooijer, C. (2002). Quenched phosphorescence detection in cyclodextrin-based electrokinetic chromatography. *Analytical Chemistry*, 74, 5139-5145.

Date submitted: 7th July 2002

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Specialty Keywords: Optical tweezers, Single molecules, Comet assay.

Current Interests: Reactions of single enzyme molecules are studied, for example the conversion of fluorescing. NADH into dark NAD⁺ by lactate dehydrogenase and the sequence specific cutting of fluorescently labeled individual DNA molecules, held by optical tweezers, with restriction endonucleases. Also, the fragility of genomes and genome regions of individual cells is visualized with the fluorescent COMET assay and COMET FISH.

K.O.Greulich 1999 Birkhäuser Basel Wien Boston (Monography) Micromanipulation by light in biology and medicine: The laser microbeam and optical tweezers.

B.Schäfer, H. Gemeinhardt and K.O.Greulich 2001 *Angew.Chem.Int.Ed.*4663-4666 Direct microscopic observation of the time course of single molecule DNA restriction reactions.

**Grummt, U.-W.
Gryczynski, I.**

Date submitted: 12th September 2002

Ulrich-W. Grummt, Ph.D.



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Specialty Keywords: Time correlated single photon counting
with ps and ns time resolution, Polymer Photophysics.

Main research topic is photophysical chemistry of conjugated, luminescent polymers and functionalized dyes with potential application in solar energy conversion, molecular electronics, non-linear optics, optical information recording, and chemical sensing. Energy migration and electron transport are of particular interest.

Ab-initio and DFT quantum chemical calculations are used to support and interpret experimental results.

E. Birckner, U.-W. Grummt, A. H. Göller, T. Pautzsch, D. A. M. Egbe, M. Al-Higari, and E. Klemm, *J. Phys. Chem. A* 105 (2001) 10307 – 10315.

U.-W. Grummt, E. Birckner, M. Al-Higari, D. A. M. Egbe, and E. Klemm, *J. Fluoresc.* 11 (2001) 41 – 51.

Date submitted: 29th July 2002

Ignacy Gryczynski, Ph.D.



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Specialty Keywords: Fluorescence, Spectroscopy, Polarization,
Multi-Photon Excitation, Light-Quenching.

Current Interest: Spectroscopy, fluorescence and ultrafast time-resolved fluorescence, fluorescence based biomedical sensing, spectroscopy in oriented systems, protein fluorescence and phosphorescence. In particular: FRET, Multi-Photon Excitation, Light Stimulated Emission – Light Quenching, Multi-Pulse Fluorescence. Four-Photon Excitation of 2,2'-Dimethyl-p-terphenyl, I. Gryczynski, G. Piszczek, Z. Gryczynski, and J. R. Lakowicz (2002). *J. Phys. Chem. A*, 106:754-759.

Multiphoton Excitation of Fluorescence near Metallic Particles: Enhanced and Localized Excitation, I. Gryczynski, J. Malicka, Y. Shen, Z. Gryczynski, and J. R. Lakowicz (2002). *J. Phys. Chem. B*. 106:2191-2195.

Date submitted: 29th July 2002

Zygmunt Gryczynski, Ph.D.



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Specialty Keywords: Spectroscopy, Fluorescence, Linear
Dichroism, Polarization, Sensing, Protein Ligand Interaction.

Current Interest: Spectroscopy, fluorescence and ultrafast time-resolved fluorescence; application of spectroscopic methods to study biological systems; application of fluorescence to biomedical sensing. In particular FRET, Multi-Photon Excitation, Multi-Pulse Fluorescence, spectroscopy in oriented systems, protein fluorescence and phosphorescence, thermodynamics of protein ligand interaction, fluorescence application to biohazard/bioterrorism and recently metal enhanced fluorescence.

Four-Photon Excitation of 2,2'-Dimethyl-p-terphenyl, I. Gryczynski, G. Piszczek, Z. Gryczynski, and J. R. Lakowicz (2002). *J. Phys. Chem. A.*, 106:754-759.

Multiphoton Excitation of Fluorescence near Metallic Particles: Enhanced and Localized Excitation, I.

Date submitted: 15th August 2003

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Specialty Keywords: Biophysics, Ligand binding and kinetics,
Fluorescence, Anisotropy, Imaging.

Research incorporates the use of multiple biophysics technologies in the validation of molecular and cellular mechanism of action of potential pharmaceutical agents. Fluorescence methods have been employed in the development of assays for high throughput screening, to validate mechanism of action for screening hits, to understand trends in structure-activity relationships, and to study interactions between biological macromolecules.

J.J. Crute, C.A. Grygon, K.D. Hargrave, B. Simoneau, A.-M. Faucher, G. Bolger, P. Kibler, M. Liuzzi, and M.G. Cordingley (2002). Herpes Simplex Virus Helicase-Primase Inhibitors are Active in Animal Models of Human Disease, *Nature Medicine*, **8**, 386-391.

Grygorovych, O. V.
Gryzunov, Y. A.

Date submitted: 12th August 2002

Oleksiy V. Grygorovych, Ph.D.



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Specialty Keywords: Complex formation of organic
luminophores, Fluorescent probes.

Current Research Interests: Absorption and fluorescence spectroscopy of conjugated aromatic and heterocyclic organic compounds. Protolytic interactions and complexation with metal ions of conjugated aromatic and heterocyclic organic compounds in their ground and excited states. Photochemical activity of unsaturated organic compounds. Design and application of organic luminophores as new fluorescent probes and sensors for biological systems.

Doroshenko A. O., Grigorovich A. V., Posokhov E. A., Pivovarenko V. G., Demchenko A. P., Sheiko A. D., 2001, Russ. Chem. Bul., 50, 404-412.

Doroshenko A. O., Sichevska L. V., Grygorovych O. V., Pivovarenko V. G., 2002, Journal of Fluorescence, accepted for publication.

Date submitted: 31st August 2002

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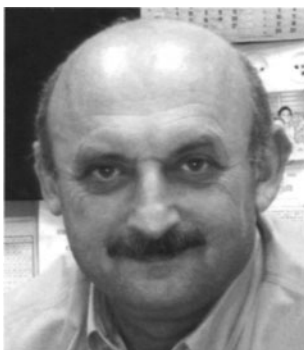
Specialty Keywords: Proteins, Probes, Molecular pathology.

Steady-state and time-resolved spectroscopy, new molecular probes are used to study proteins and lipid-protein complexes both under physiological as well as pathological conditions. Fluorescent probes make it possible to study early changes of conformation and physical-chemical properties of biomacromolecules which are very sensitive to the state of human body. G.E.Dobretsov, T.I.Syrejshchikova, Yu.A.Gryzunov and M.N.Yakimenko (1998) Quantification of fluorescent molecules in heterogeneous media by use of the fluorescence decay amplitude analysis *J.Fluorescence*, 1(1), 27-34.

Yu.A.Gryzunov, T.I.Syrejshchikova et al. (2000) Serum albumin binding sites properties in donors and in schizophrenia patients *Nucl. Instr.& Meth.Phys. Res. A*(448), 478-482.

Date submitted: 19th August 2003

Eugene E. Gussakovsky, Ph.D., D.Sc.



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Tel: +97 23 968 3409 Fax: +97 23966 9583
gussake@mail.biu.ac.il & gussak@agri.gov.il

Specialty Keywords: Biophysics, Protein structure,
Photosynthesis.

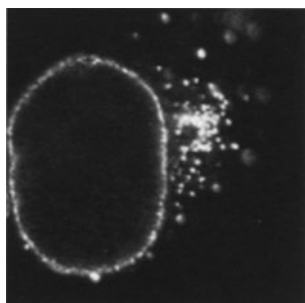
Current research interests: circularly polarized luminescence of biological molecules, their structures and probes; steady state and modulated fluorescence, resonance excitation energy transfer, single molecule FRET, light absorbance, circular dichroism in protein folding/unfolding and plant photosynthesis research; environmental photobiology.

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Prof. Herbert van Amerongen, Laboratory of Biophysics, Wageningen University, Wageningen, the Netherlands; Herbert.vanAmerongen@wur.nl.

Date submitted: 9th September 2002

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Specialty Keywords: Nuclear membrane, Nuclear pores, GFP.

Trafficking of proteins and RNA molecules in and out of the cell nucleus takes place via the nuclear pore complexes situated in the thousands of pores covering the nuclear surface. We investigate structural and functional aspects of how the nuclear pore complex and the nuclear membranes are organized. We use fluorescence microscopy and confocal laser scanning microscopy on cells expressing proteins tagged with GFP (Green Fluorescent Protein). We also perform Live Cell Imaging including studies of intracellular dynamics using photobleaching.

Kihlmark, M., Imreh, G. and Hallberg, E. (2001) J. Cell Sci., 114, 3643-3653.

Imreh, G. and Hallberg, E. (2000) Exptl. Cell Res., 259, 180-190.

**Hamers-Schneider, M.
Härtel, S.**

Date submitted: 4th September 2002

Monika Hamers-Schneider, Ph.D.



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&
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www.atto-tec.com

Specialty Keywords: Fluorescent Dyes, Fluorescent Labels,
Fluorescent Sensors.

My research interest is focused on the synthesis of fluorescent labels for bioanalytical applications. Furthermore I am interested in fluorescent dyes which are specially functionalized to meet the requirements of optical sensors.

J. Arden-Jacob, J. Frantzeskos, N.U. Kemnitzer, A. Zilles, and K.H. Drexhage (2001). New fluorescent markers for the red region, *Spectrochim. Acta A*, **57**(11), 2271-2283.

M. Hamers-Schneider (1997). Ph.D. Thesis. Funktionelle Rhodamin-Derivate zur Fluoreszenz-Detektion in Analytik und Sensorik. Shaker Verlag, Aachen.

Date submitted: 22nd August 2002

Steffen Härtel, Ph.D.



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Specialty Keywords: Lipid Membrane Organization, Image
Processing, Fluorescence Microscopy.

Current Research Interests: My current research interest is focused on the development of image processing routines which improve the interpretation of structural and dynamical information, originated in diverse lipid membrane systems. Techniques include fluorescence microscopy of membrane sensitive fluorescent dyes in lipid monolayers, liposomes, and in plasma membranes of living cell cultures.

Härtel, S., Tikhonova, S., Haas, M., Diehl, H. (2002) Membrane Sensitive Fluorescent Dyes for Applications in Fluorescence Microscopy. In press, Journal of Fluorescence.

Fanani, M., Härtel, S., Oliveira, R., Maggio, B. (2002) Bi-directional control of sphingomyelinase activity and surface topography in lipid monolayers. In press, Biophysical Journal.

Date submitted: 30th May 2002

Richard P. Haugland, Ph.D.



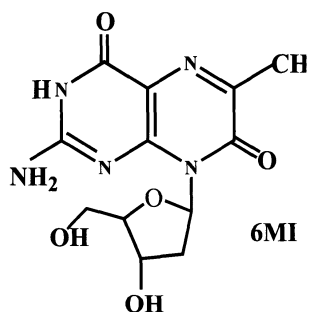
Corporate / Research & Development, Molecular Probes Inc.,
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Specialty Keywords: Fluorescence.

Earned Ph.D. in Organic Chemistry from Stanford University (1970). Founder and President of Molecular Probes, Inc. (1975). Author and publisher of the *Handbook of Fluorescent Probes and Research Products*, 9th edition scheduled for release in September 2002. Recent winner (awarded jointly to Dr. Haugland and Dr. Lubert Stryer) of the Molecular Bioanalytics Award 2002 for outstanding achievements in the field of fluorescence resonance energy transfer (FRET).

Date submitted: 30th August 2002

Mary E. Hawkins, M.Sc.



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Specialty Keywords: Pteridine, Nucleoside analog.

We have developed highly fluorescent pteridine nucleoside analog probes synthesized as deoxyribose phosphoramidites ready for site-specific incorporation into oligonucleotides using automated DNA synthesis (TriLink Biotechnologies, San Diego, CA). Native-like linkage positions probes in base-stacked orientation making fluorescence properties exquisitely sensitive to structural changes occurring nearby. Quantum yields for G analogs 3MI & 6MI are 0.9 & 0.7: for A analog, 6MAP, 0.4. These probes are very useful for examination of protein/DNA interactions.

M. E. Hawkins (2001) Fluorescent Pteridine Nucleoside Analogs: A Window on DNA Interactions, *Cell Biochemistry and Biophysics*, **34**, 257-281.

M. E. Hawkins *et al.* (2001) Synthesis and Fluorescence Characterization of Pteridine Adenosine Analogs, *Anal. Biochem.* **298**, 231-240.

Heagy, M. D.
Heikal, A. A.

Date submitted: 27th August 2002

Michael D. Heagy, Ph.D.

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Specialty Keywords: Chemosensors, Molecular recognition.

The general aims of our ongoing investigations include the application of supramolecular chemistry to the design of fluorogenic reagents for detection of clinically important saccharides. Means of distinguishing between isomers of such biorelevant molecules in protic media (preferably water) at biological pH. Short and practical synthetic methods to fluorescent assemblies that selectively monitor carbohydrates and carbohydrate derivatives. Use of fluorescence spectroscopy to identify signaling mechanisms where substrate binding and fluorescence pathways intersect.

DiCesare, N.; Adhikari, D.P.; Heynekamp, J.J.; Heagy, M.D.; Lakowicz, J.R. *J. Fluor.* **2002**, *12*, 147-154.

Cao, H.; Diaz, D.I.; DiCesare, N.; Lakowicz, J.R.; Heagy, M.D. *Org. Lett.* *4*, 1503-1505.

Date submitted: 7th September 2002

Ahmed A. Heikal, Ph.D.

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Ithaca, NY 14853,
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Specialty Keywords: Multiphoton fluorescence, Intrinsically fluorescent proteins, Nanoparticles, Molecular dynamics.

I am interested in a molecular-level understanding of complex biological processes. Multidisciplinary approach and integrated fluorescence techniques are critical for such investigation. For example, we have studied the thermodynamics and excited-state fluorescence of green fluorescent proteins (GFP) and red fluorescent protein (DsRed) in both aqueous solution and living cells (1, 2). Furthermore, we have utilized endogenous fluorophores (*e.g.*, NADH and FAD) to monitor the respiratory state activities of cardiac cells using (3) and nervous systems.

A.A. Heikal; S.T. Hess; W.W. Webb; *Chem. Phys.* (2001), 274(1), 37-55.

A.A. Heikal; S.T. Hess; G.S. Baird; R.Y. Tsien; W.W. Webb; *Proc. Natl. Acad. Sci. U. S. A.* (2000), 97(22), 11996-12001.

S. Huang; A.A. Heikal; W.W. Webb; *Biophys. J.* (2002), 82(5), 2811-2825.

Date submitted: 23rd July 2003

Stefan W. Hell, Ph.D.



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www.mpibpc.gwdg.de/abteilungen/200/

Specialty Keywords: Sub-Abbe resolution, PSF- Engineering,
STED, 4Pi, Saturation.

We have introduced and developed concepts that have broken the diffraction barrier in focusing fluorescence microscopy and have attained spatial resolution at the nanometer scale. We apply these concepts, such as 4Pi and STED-microscopy, to the fluorescence imaging of live cells.

A. Egner, S. Jakobs, and S. W. Hell (2002) *Proc. Natl. Acad. Sci. USA* **99**, 3370-3375.

M. Dyba and S. W. Hell (2002) *Phys. Rev. Lett.* **88**, 163901-163904.

Date submitted: 16th September 2002

Sherry L. Hemmingsen, Ph.D.



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Fluorescence Business Development Manager,
2700 Mitchell Drive,
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www.varianinc.com

Specialty Keywords: Total luminescence spectroscopy,
Fluorescence lifetime analysis, Instrumentation.

I support a diverse range of customer applications/needs in the life sciences, pharma, photonics, etc., develop/present fluorescence training, and contribute to marketing and sales efforts along with the development of new instrumentation and software.

Former research included fluorescence spectral and lifetime characterization of complex systems such as humic substances, chemometric methods of data analysis, Globals, MEM and total lifetime distribution analysis.

S. L. Hemmingsen and L. B. McGown (1997). Phase-Resolved Fluorescence Spectral and Lifetime Characterization of Commercial Humic Substances: *Appl. Spectrosc.*, **57**, 921.

L. B. McGown, S. L. Hemmingsen, J. M. Shaver, L. Geng (1995). Total Lifetime Distribution Analysis for Fluorescence Fingerprinting and Characterization: *Appl. Spectrosc.*, **49**, 60.

Hennecke, M. H.
Hermetter, A.

Date submitted: 21st August 2002

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Specialty Keywords: Fluorescence polarization,
Chemiluminescence.

Physical chemistry of polymers, in particular optical spectroscopy of dimers, oligomers and polymers (especially with polarized light, including time-resolved spectroscopy). Photochemical reactions and aging of polymers (by means of chemiluminescence).

B. Schartel, M. Hennecke, "Thermo-oxidative stability of a conjugated polymer by chemiluminescence", Polym. Degr. Stab. **67**, 249-253, 2000.

B. Schartel, S. Krüger, V. Wachtendorf, M. Hennecke, "Excitation energy transfer of a bichromophoric cross-shaped molecule investigated by polarized fluorescence spectroscopy" J. Chem. Phys. **112**, 9822-9827, 2000.

Date submitted: 1st August 2003

Albin Hermetter, Ph.D.



Department of Biochemistry,
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Specialty Keywords: Oxidized lipids, Lipases, Membranes.

Our research deals with the role of glycerol (phospho) lipids as components of membranes and lipoproteins, as mediators in cellular (patho) biochemistry, and their application as analytical tools in enzyme technology. In this context, we develop and apply fluorescence techniques to study lipid oxidation, the effects of oxidized lipids on intracellular signalling, and function of lipolytic enzymes in biocatalysis and medicine on the proteome level.

Fluorescent inhibitors reveal solvent-dependent micropolarity in the lipid binding sites of lipases. O.V. Oskolkova and A. Hermetter, Biochim.Biophys.Acta 1597, 60 – 66 (2002).

High-precision fluorescence assay for sphingomyelinase activity of isolated enzymes and cell lysates. A.Loidl, R. Claus, H. P. Deigner, and A. Hermetter, J.Lipid.Res. (2002) 43, 815 – 823.

Date submitted: 10th September 2002

Andreas Herrmann, Ph.D.

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D-10115,
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www.biologie.hu-berlin.de/~molbp/new/

Specialty Keywords: Membrane, Fusion, Flip-flop.

The research focuses on the following topics: (i) transport of lipids across biological membranes, (ii) the trafficking of lipids in eukaryotic cells, (iii) protein-mediated fusion of biological membranes, and (iv) protein-lipid interaction. Various spectroscopical methods including fluorescence spectroscopy and quantitative fluorescence microscopy are employed. (Fluorescent) labeling of biological molecules is achieved by molecular biology approaches (proteins) or by chemical synthesis (lipid analogues).

Kubelt, J., AK. Menon, P. Müller, A. Herrmann (2002) *Biochemistry*. **41**, 5605-5612.

John, K., J. Kubelt, P. Müller, D. Wüstner, A. Herrmann (2002) *Biophys. J.* **83**, 1525-1534.

Date submitted: 11th September 2002

Joseph D. Hewitt, Ph.D.



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CA, 94598,
USA.

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www.varianinc.com

Specialty Keywords: Fluorescence Instrumentation.

Current Research Interests: As a fluorescence product specialist for Varian in the Midwest US, I work on application questions, Eclipse spectrofluorometer demonstrations and sales support. My individual research interests include humic substance lifetime spectroscopy, coupled detection schemes and fluorescence sensing technology.

Hind, A. R.
Hirsch, R. E.

Date submitted: 11th September 2002

Andrew R. Hind, Ph.D.



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England.

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andrew.hind@varianinc.com
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Specialty Keywords: Materials science, Industrial chemistry,
Optics / photonics, Molecular spectroscopy.

Background in 'applied' molecular spectroscopy research, with focus on applications in the materials science, industrial chemistry and optics/photonics areas. Experienced in the use of fluorescence, UV-Vis (including far-UV), infrared (near-, mid-, and far-) and Raman spectroscopies, with particular areas of interest including semiconductor, telecommunications, mineralogical and coating/surface characterization applications. Very interested in new spectroscopic instrumentation, techniques and applications.

A.R. Hind, S.K. Bhargava, and S.C. Grocott (1999) Colloids Surf. A. 146, 359-374.

A.R. Hind, S.K. Bhargava, and A. McKinnon (2001) Adv. Colloid Interfac. Sci. 93, 91-114.

Date submitted: 27th August 2003

Rhoda Alison Hirsch, Ph.D.



Dept. of Medicine (Hematology) and Dept. of Anatomy &
Structural Biology, Albert Einstein College of Medicine,
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rhirsch@aecom.yu.edu

Specialty Keywords: Hemoglobin, Front-face fluorometry,
Hemoglobin C crystal growth.

Our laboratory focuses on the $\beta 6$ hemoglobin mutants that form aggregates in the red blood cell: Why does oxy HbC ($\beta 6$ Glu \rightarrow Lys) form crystals in the red blood cell in contrast to deoxy sickle cell hemoglobin [HbS, $\beta 6$ Glu \rightarrow Val] that forms polymers? We are also interested in model hemoglobin based blood substitutes and stabilization mechanisms. The application of front-face fluorescence to study hemoglobin and heme proteins is ongoing in the laboratory.

QY Chen and RE Hirsch. "Quantification of Effector Binding to the Hemoglobin Central Cavity by Intrinsic and Extrinsic Steady-State Fluorescence." Journal of Fluorescence 13:25-31, 2003

QY Chen, C Bonaventura, RL Nagel, and RE Hirsch. "Distinct Domain Responses of R-state Human Hemoglobins A, C, and S to Anions." Blood Cells, Molecules and Diseases (2002), in press.

Date submitted: 12th August 2002

Martin Hof, Ph.D.



Center for Complex Molecular Systems and Biomolecules,
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Specialty Keywords: Solvent Relaxation, Tryptophan
Fluorescence, Fluorescence Correlation Spectroscopy (FCS).

Following main topics are presently pursued in M. Hof's laboratory:

- 1) Solvent relaxation in phospholipid bilayers [1]: Basic principles, applications, and new membrane labels.
- 2) FCS as a tool for the characterization of DNA condensation [2].
- 3) Formation of phospholipid mono- and bilayers controlled by FCS.
- 4) Picosecond tryptophan fluorescence of blood coagulation proteins.

[1] J. Sýkora, P. Kapusta, V. Fidler, M. Hof On What Time-Scale Does Solvent Relaxation in Phospholipid Bilayers Happen? (2002), *Langmuir*, 18(3), 571-574.

[2] T. Kral, M. Hof, M. Langner Effect of Spermine on the Plasmide Condensation and Dye Release Observed by FCS (2002), *Biol. Chem.* 383 (2), 331-335.

Date submitted: 13th September 2002

Johannes W. Hofstraat, Ph.D.



Dept. of Polymers & Organic Chemistry, Philips Research,
Prof. Holstlaan 4, 5656 AA Eindhoven,
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hans.hofstraat@philips.com

Specialty Keywords: Materials, Displays, Diagnostics,
Photonics.

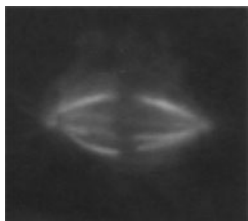
Research topics: (Electro) luminescent polymers, dyes, in particular luminescent metal complexes, and self-organizing materials, for application in displays (emissive, liquid crystalline, reflective), storage (optical, solid-state), electronics (mainly polymer-based) and sensors, e.g. for medical applications (diagnostics, imaging). Research on (opto-)electronic devices: preparation and characterization. Advanced instrumentation for ultra fast time-resolved measurements, for microscopy and for imaging, also for near-infrared luminescence.

K. Brunner, J.A.E.H. van Haare, B.M.W. Langeveld-Voss, H.F.M. Schoo, J.W. Hofstraat, A. van Dijken, *J. Phys. Chem. B*, 106, 6834-6841 (2002).

L.H. Slooff, A. van Blaaderen, A. Polman, G.A. Hebbink, S.I. Klink, F.C.J.M. van Veggel, D.N. Reinhoudt, J.W. Hofstraat, *J. Appl. Phys.*, 91, 3955-3980 (2002).

Howell, B. J.
Hungerford, G.

Date submitted: 18th August 2002



Bonnie J. Howell, Ph.D.

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CB#3280, 607 Fordham Hall, Chapel Hill,
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Specialty Keywords: Fluorescence, FRAP, Spindle checkpoint.

The spindle checkpoint prevents aneuploidy by inhibiting anaphase onset until all chromosomes have achieved proper spindle attachment and alignment. To elucidate a mechanism for spindle checkpoint activity, I've used quantitative fluorescence, phase-contrast, and confocal microscopy to examine the localization pattern and dynamic behavior of spindle checkpoint proteins in living mammalian tissue culture cells. Fluorescence recovery after photobleaching (FRAP) techniques have also been used to determine the transitory nature of these components at kinetochores and spindle poles.

Howell, B.J. et al. 2000. *J. Cell Biol.* 150: 1233-1249.

Howell, B.J. et al. 2001. *J. Cell Biol.* 155: 1159-1172.

Date submitted: 7th July 2002



Graham Hungerford, Ph.D.

Departamento de Física,
Universidade do Minho,
4710-057 Braga,
Portugal.

graham@fisica.uminho.pt

Specialty Keywords: Time-resolved fluorescence, Sol-gel and Microheterogeneous systems.

My present research interests involve the manufacture and study (using fluorescence techniques) of sol-gel-derived matrices to elucidate dye-dye and dye-host interactions. The matrices are made using either Si or Ti precursors to form "passive" or "active" hosts, in which we can incorporate solvatochromic probes, porphyrins and phthalocyanines. Similar probes have also been employed in a study using surfactant systems.

G. Hungerford, J.A. Ferreira (2001). The effect of the nature of retained solvent on the fluorescence of Nile red incorporated in sol-gel-derived matrices. *J. Lumin.* **91**, 155-165.

G. Hungerford *et al.* (2002). Monitoring ternary systems of C₁₂E₅/water/tetradecane via the fluorescence of solvatochromic probes. *J. Phys. Chem. B.* **106**, 4061-4069.

Date submitted: 3rd September 2003

Takamitsu Ikkai, Ph.D.



Biophysics, Aichi Prefectural University of Fine Arts,
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Specialty Keywords: Excimer fluorescence, Crystal, Actin.

If we want to know the dynamic mechanism of protein function, its structural change in solution based on the knowledge of crystal has to be studied. As a clue to this problem, we employed the excimer fluorescence which can be measured both in solution and crystal, and used pyrene-labeled actin as a sample. The structural dynamics monitored will bring a new information concerned with intramolecular rearrangement, not observed with other methods.

T. Ikkai, K. Shimada (2002) Introduction of fluorometry to the screening of protein crystallization buffers. *J. Fluoresc* **12**, 167-171.

Date submitted: 30th August 2002

Amando S. Ito, Ph.D.

Departamento de Física e Matemática,
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Specialty Keywords: FRET, Peptide conformational dynamics, Peptide / lipid interaction.

Research interests: Physico-chemical properties of extrinsic and intrinsic fluorescent probes for peptides and proteins. Donor-acceptor distance distribution and conformational dynamics in peptides. Labeled macromolecules in interaction with supramolecular assemblies. Fluorescence studies on membrane models.

A.S. Ito, E.S. Souza, S.R. Barbosa and C.R. Nakaie. (2001) Fluorescence Study of Melanotropins Labeled with Aminobenzoic Acid. *Biophysical Journal*, 81, 1180-1189.
D.C.Pimenta, I.L.Nantes, E.S.Souza, B. le Boniec, A.S.Ito, I.L.S.Tersariol, V.Oliveira, M.A.Juliano and L.Juliano. (2002) Interaction of heparin with internally quenched fluorogenic peptides. *Biochem. J.*, 366, 435-446.

Jankowski, A. S.
Johansson, L. B.-Å.

Date submitted: 24th August 2003

Andrzej S. Jankowski, Ph.D.

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Specialty Keywords: Energy transfer, Excited state proton transfer, Impurity detection.

Research: 1) Measurements of intramolecular distances in peptides and proteins by studies of energy transfer in fluorimetry. 2) A study of the influence of molecular environment on the rate of excited state proton transfer in proteins and Langmuir-Blodgett films treated as some models of biological membranes. 3) Mechanism of proton transfer in media of low polarity. 4) Some syntheses of model organic compounds for a study of proton transfer in biological systems.

A.Jankowski: Spectrofluorimetric Investigations of the Mechanism of Proton Transfer in Biopolymers. Wrocław 1996, University Press (in Polish with a summary in English).

A.Mironczyk, A.Jankowski: Investigation of excited state proton transfer in...
J.Photochem.Photobiol A.153(2002)89-100.

Date submitted: 2nd September 2003

Lennart B.-Å. Johansson, Ph.D.



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Specialty Keywords: Energy transfer / migration, Polarised emission, Structure of biomacromolecules.

In our research new versatile tools based on fluorescence are developed and applied for examining structure-dynamics-function of biomacromolecules, especially proteins. For an understanding at a molecular level, we use and extend the weak and strong coupling mechanisms of Förster. Derivatives of BODIPY are both spectroscopically characterised and used for labelling proteins. In addition to common one-photon excitation of fluorescence, we also study time-resolved two-photon excitation. The methods developed are applied for exploring molecular mechanisms in the fibrinolytic system and protein aggregation related to the Alzheimer's and Creutzfeldt-Jakob's diseases.

S. Kalinin, J. G. Molotkovsky and L. B.-Å. Johansson: Distance Measurements Using Partial Donor-Donor Energy Migration (PDDEM) within Pairs of Fluorescent Groups in Lipid Bilayers. *J. Phys. Chem B.*, 107, 3318 (2003).

Date submitted: 25th July 2003

Arthur E. Johnson, Ph.D.



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Specialty Keywords: Protein-Membrane Interactions, Protein Trafficking, FRET.

We are investigating the movement of proteins through or into a membrane (protein trafficking), the creation of holes in mammalian cell membranes by bacterial toxins, protein folding, and protein biosynthesis. Various fluorescence techniques are used to characterize the molecular interactions and conformational changes involved in the assembly, function, and regulation of membrane-bound protein complexes. FRET is used to determine their structure and topography, to detect and quantify conformational changes, and to monitor intermolecular association.

N. G. Haigh, and A. E. Johnson (2002) A New Role for BiP: Closing the Aqueous Translocon Pore during Protein Integration into the ER Membrane, *Journal of Cell Biology* **156**, 261-270.

Ramachandran, R., Heuck, A. P., Tweten, R. K., and Johnson, A. E. (2002) Structural Insights into the Membrane-Anchoring Mechanism of a Cholesterol-Dependent Cytolysin, *Nature Structural Biology* **9**, 823-827.

Date submitted: 17th October 2003

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Specialty Keywords: Time-resolved fluorescence, Single-molecule fluorescence.

The research in my laboratory focuses on the dynamic properties peptides and proteins by time-resolved and single-molecule spectroscopy. We are using single-molecule fluorescence spectroscopy to investigate calcium signaling and enzyme activation by single calmodulin molecules. In other projects, time-resolved fluorescence anisotropy and resonance energy transfer experiments are being used to probe the dynamics of short peptides or DNA aptamers in solution.

K.D. Osborn, M.K. Singh, R.J.B. Urbauer, and C.K. Johnson, Maximum Likelihood Approach to Single-Molecule Polarization Modulation Analysis, *ChemPhysChem*, in press; M.W. Allen, J.R. Unruh, B.D. Slaughter, S.J. Pyszczynski, T.R. Hellwig, T.J. Kamerzell and C.K. Johnson, The Spectroscopy and Photophysics of Indoline and Indoline-2-Carboxylic Acid, *J. Phys. Chem. A*, **107**, 5660-5669 (2003).

Johnson, M. L.
Jones, A. C.

Date submitted: 24th May 2002

Michael L. Johnson, Ph.D.



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Specialty Keywords: Mathematical Modeling, Biophysics.

My research interests center on understanding the biochemical, physical chemical, and thermodynamic pathways by which one portion of a biological organism transfers information to other portions of the same organism. This interest has spawned research at the level of whole organisms, at the cellular level and at the molecular level.

Date submitted: 30th August 2002

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Specialty Keywords: Spectroscopy, Photophysics, Time-resolved fluorescence, FLIM.

Research interests: Steady state and time-resolved fluorescence spectroscopy; fluorescence lifetime imaging; molecular photophysics and photochemistry; use of fluorescence to probe biomolecular systems; photophysics of luminescent polymers; industrial and biomedical applications of fluorescence.

N.M. Speirs, W.J. Ebenezer and A.C. Jones (2002). Observation of a fluorescent dimer of a sulfonated phthalocyanine, *Photochem. Photobiol* **76**, 247-251.

A C Jones, M. Millington, J Muhl, J M De Freitas, J S Barton and G Gregory (2001). Calibration of an optical fluorescence method for film thickness measurement, *Measurement Science & Technology*, **12**, N23-N27.

Date submitted: 22nd August 2002

Hans-Peter Josel, Ph.D.

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Specialty Keywords: Fluorescence Label, Time Resolved Fluorescence Label, FRET.

Development of tailor made luminescence label, esp. fluorescence label, time resolved fluorescence label, specially designed FRET systems for use in detection in diagnostics (DNA and others) and pharma screening.

Josel, Hans-Peter; Herrmann, Rupert; Heindl, Dieter; Muehlegger, Klaus; Sagner, Gregor; Drexhage, Karl Heinz; Frantzeskos, Jorg; Arden-Jacob, Jutta. Fluorescent rhodamine dye derivatives and their use in diagnostic systems. Eur. Pat. Appl. (1999) EP 962497.
Herrmann, Rupert; Josel, Hans Peter; Drexhage, Karl Heinz; Arden, Jutta. Pentacyclic compounds, their use as dyes and fluorescent dyes, and immunoassay therewith. Ger. Offen. (1993), DE 4137934.

Date submitted: 18th August 2003

Inta Kalnina, M.D.

Department of Organic Chemistry,
1 Kalku Str., Riga,
Latvia, LV 1048,
Russia.
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lulc@lanet.lv

Specialty Keywords: Fluorescent probes, Lymphocytes, Diagnostics.

Newly synthesized fluorescent probes, derivatives of naphthalic acid and 3 – aminobenzanthrone (ABM) is used to characterize the structural and functional alternations in lymphocytes membrane and β -adrenoreactivity of organism during pathological phenomena (tuberculosis, multiple sclerosis, rheumatoid, arthritis, cardiac diseases, gastrointestinal cancer, leukemia etc.). Spectral characteristics of probes correlate with the clinical view of diseases. Probes offer perspective as screening method for diagnostics and effectiveness of therapy.

Kalnina I, Meirovics I. (1999) J.Fluoresc., 9 (1), 27-32.

Bruvere R., Gabruseva N., Kalnina I., etc. (2003) J. Fluoresc. 13(2), 149-156.

Kang, H. C.
Kang, J. S.

Date submitted: 31st May 2002



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www.probes.com

Specialty Keywords: Fluorescence, Time-resolved probes,
Nucleotides.

My research focuses on the design and development of novel fluorescent molecules with improved spectral properties. Recent projects include: Design and synthesis of novel fluorescent organometallic complexes with long fluorescence lifetimes and high Stokes shift for time-resolved applications, design and synthesis of fluorescent probes for direct chemical labeling of nucleic acids, and, synthesis of a wide variety of fluorescent nucleotides for the study of nucleotide-binding proteins.

Date submitted: 9th July 2002



Jung Sook Kang, Ph.D.

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Specialty Keywords: Macromolecular dynamics, Frequency-
domain fluorometry, Long-lifetime metal-ligand complex.

I have been studying the dynamics of proteins, nucleic acids, and membrane lipids using a variety of fluorescence techniques. Recently my research was focused on investigating macromolecular dynamics using long-lifetime metal-ligand complexes.

Kang J. S., Piszczek G. and Lakowicz J. R. (2002) High-molecular-weight protein hydrodynamics studied with a long-lifetime metal-ligand complex. *Biochim. Biophys. Acta* 1597, 221-228.

Kang J. S., Abugo O. O. and Lakowicz J. R. (2002) Dynamics of supercoiled and linear pTZ18U plasmids observed with a long-lifetime metal-ligand complex. *Biopolymers* 67, 121-128.

Date submitted: 6th September 2002

András D. Kaposi, Ph.D.



Dept. of Biophysics and Radiation Biology,
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Hungary.
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Specialty Keywords: Fluorescence line narrowing, Spectroscopy inhomogeneous broadening.

Research interests: Laser excited high-resolution luminescence spectroscopy of inhomogeneously broadened samples, energy selective optical spectroscopy of heme proteins, understanding of factors that influence the fluorescence line narrowing spectra, substrate binding to heme proteins (fluorescence, FTIR and visible absorption spectroscopy), natural chromophores, plant and bacterial fluorescence.

Fidy J., M. Laberge, A.D. Kaposi and J.M. Vanderkooi, (1998). Fluorescence line narrowing applied to the study of proteins *Biochim. Biophys. Acta* **1386**, 331-351.

Kaposi A.D., W.W. Wright and J.M. Vanderkooi, (2002). Consequences of inhomogeneous broadening on fluorescence line narrowing spectra *J. Fluorescence* (accepted).

Date submitted: 24th June 2002

Peter Kapusta, Ph.D.



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Berlin 12489,
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Specialty Keywords: Pulsed Diode Lasers, LED, Time-resolved Spectroscopy, Single Molecule Detection, Anisotropy, TCSPC.

Current Status and Scientific Interests: Senior scientist at PicoQuant GmbH, development of laser diode and LED based time-resolved fluorescence instrumentation, promotion of the TCSPC method in various research.

Karuso, P.
Kask, P.

Date submitted: 13th August 2003

Peter Karuso, Ph.D.



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Specialty Keywords: Proteomics, Natural products, Bioassay.

The Karuso group specialize in natural products chemistry and the discovery/application of new fluorescent technologies. Past achievements include a fluorescence based antimicrobial assay¹ and the isolation of a fluorescent natural product from a fungus² that is being developed as a powerful 2D gel electrophoresis stain. Current interests include the isolation of new fluorescent stains and the synthesis of fluorescence based molecular rulers.

S. Chand, I. Lusunzi, L. R. Williams, D. A. Veal and P. Karuso (1994) Rapid screening of the antimicrobial activity of extracts and natural products. *J. Antibiotics* **47**, 1295–1304.

P. J. L. Bell and P. Karuso (2003) Epicocconone, a novel fluorescent compound from the fungus *Epicoccum nigrum*. *J. Amer. Chem. Soc.* **125**, 9304–9305.

Date submitted: 3rd September 2002

Peet Kask, Ph.D.



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Estonia.

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Specialty Keywords: FCS, FIDA, Photon Statistics.

Development of new fluorescence methods of a single molecule sensitivity for applications in e.g. high throughput drug screening. Molecular species are recognized on basis of fluorescence lifetime, specific brightness, fluorescence anisotropy, diffusion time and other specific molecular properties. The so-called FIDA-family of histogram methods has been developed: FIDA, 2D-FIDA, FIMDA and FILDA.

K.Palo, L.Brand, C.Eggeling, S.Jäger, P.Kask and K.Gall. Fluorescence intensity and lifetime distribution analysis: Toward higher accuracy *Biophys.J.* (2002) 83(2), 605-618.

P.Kask, K.Palo, N.Fay, L.Brand, Ü.Mets, D.Ullmann, J.Jungmann, J.Pschorr, and K.Gall. Two-dimensional fluorescence intensity distribution analysis *Biophys.J.* (2000) 78(4), 1703-1713.

Date submitted: 9th September 2003

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Specialty Keywords: Polymeric gels, Critical phenomena,
Universality.

I have been studying on critical phenomena in different polymeric gels by using steady-state and/or time-resolved fluorescence techniques. These techniques made it possible to study the glass transition in the bulk polymers and showed that this transition is in the same universality class as percolation.

D. Kaya and Ö. Pekcan *J.Phys.Chem.B*, 106, 6961-6965, (2002).

D. Kaya, Ö. Pekcan and Y. Yilmaz *Phase Transition*, 76, 6, 543-556, (2003).

Date submitted: 4th September 2002

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Specialty Keywords: Organic Dyes, Fluorescent Labels.

My research interest is the development and synthesis of fluorescent dyes suitable as labels for applications in biochemistry and medicine. Therefore I am particularly interested in the design and chemical modification of chromophoric systems for the red region of the visible spectrum.

J. Arden-Jacob, J. Frantzeskos, N.U. Kemnitzer, A. Zilles, and K.H. Drexhage (2001). New fluorescent markers for the red region, *Spectrochim. Acta A*, **57**(11), 2271-2283.

N.U. Kemnitzer (2001). Ph.D.Thesis. Amidopyrylium-Fluoreszenz-Farbstoffe. Der Andere Verlag, Osnabrück.

Kierdaszuk, B.
Kinnunen, P. K. J.

Date submitted: 30th August 2002

Borys Kierdaszuk, Ph.D., D.Sc.



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www.fuw.edu.pl

Specialty Keywords: Emission spectroscopy of biological molecules, Protein-ligand interactions, Fluorescence probes.

Emission (fluorescence, phosphorescence) spectroscopy applicable to biophysical studies of bio-macromolecular systems and their constituents, e.g. mechanism of recognition and kinetics of protein-ligand binding, identification and characterization of reaction transition states, confrontation of crystallographic data with solution studies; to better understand the mechanisms of catalysis, towards development of sensitive and selective methods of detection.

Kierdaszuk B., Modrak-Wójcik A., Wierzechowski J., Shugar D. (2000) Induced tautomeric shifts on binding to enzyme, and enzyme-ligand FRET. *Biochim. Biophys. Acta* **1476**, 109-128.

Stepanenko T., Lapinski L., Sobolewski A.L., Nowak M.J., Kierdaszuk B. (2000) Photochemical syn-anti isomerisation reaction. *J. Phys. Chem.* **104**, 9459-9466.

Date submitted: 30th August 2002

Paavo K. J. Kinnunen, Ph.D.

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Specialty Keywords: Lipids, Biomembranes, Lipid-protein interactions.

The major line of research of HBBG pursues the molecular level mechanisms underlying both 2-D and 3-D ordering of supramolecular assemblies constituted by lipids, aiming to compile an integrated view on the coupling between the physical properties of lipids to the physiological functions of biomembranes. More specifically, we are elucidating the mechanisms which convey changes in the physicochemical characteristics of bilayer lipids to the conformation and activity of membrane proteins.

Date submitted: 18th August 2003

Andrée Kirsch-De Mesmaeker, Ph.D.



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Tel: 32 (0)2 650 3017 Fax: 32 (0)2 650 3606
akirsch@ulb.ac.be
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Specialty Keywords: Ru(II) complexes, DNA, Dendrimer.

Interaction and photoreaction of Ru(II) and Rh(III) complexes with DNA, examined by spectroscopic methods and gel electrophoresis analyses. Study of Ru(II) derivatized oligonucleotides in the frame of the antisense and antigene strategy or as molecular tools in genes analysis. Ru-induced photocrosslinking of oligonucleotides. Preparation and study of polynuclear Ru(II) complexes and dendrimers for applications with biomolecules or as antenna systems for the collection of light.

O. Lentzen, .F. Constant, E. Defrancq, M. Prevost, S. Schumm, C. Moucheron,
P. Dumy, A. Kirsch-DeMesmaeker, ChemBioChem, 4 (2003), 195-202.
C. Moucheron, A. Kirsch-DeMesmaeker, A. Dupont, E. Leize, A. Van Dorsselaer,
J. Am. Chem. Soc., 118 (1996), 12834-12835.

Date submitted: 12th September 2002

Halina Kleszczyńska, Ph.D.



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Specialty Keywords: Erythrocyte, Membrane organization, Fluorescence.

Our research activity concerns mainly membrane-active compounds that influence the properties of erythrocyte membranes. The aim is twofold. To determine the potential biological activity of newly synthesized compounds and to find out how biological membranes can be protected against some environment polluting compounds.

Kleszczyńska H., Oświęcimska M., Bonarska D., Sarapuk J. (2002) Antioxidative properties of pyrrolidinium and piperidinium salts. Z. Naturforsch. 57c, 344-347.

Trela Z., Kleszczyńska H., Sarapuk J. (2001) Physiological and hemolytic toxicity of some aminophonates. Z. Naturforsch. 56c, 838-842.

**König, K.
Koppaka, V.**

Date submitted: 28th August 2002

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Specialty Keywords: Multiphoton microscopy, Time-resolved single photon counting, Tissue imaging, Autofluorescence.

Research is focussed on multiphoton fluorescence microscopy and imaging of tissue autofluorescence with high submicron spatial resolution, 250ps temporal resolution and 5nm spectral resolution. Our studies include the single/few molecule level (e.g. Multiphoton Multicolor FISH, time-resolved FRET), the single cell level (e.g. GFP expression after optical gene transfer, imaging of optically trapped gametes and microorganisms) and *in vivo* studies on tissues (optical multiphoton tomography of skin and eyes). The equipment includes femtosecond laser scanning microscopes, a TauMap microscope for fluorescence lifetime imaging, systems for nanosurgery and imaging, laser tweezers and the multiphoton skin imaging system DermaInspect 100.

König: Review. Multiphoton microscopy in life sciences. J. Microsc. 200(2000)83-104.

Tirlapur, König: Targeted transfection by femtosecond laser. Nature. 418(2002)290-291.

Date submitted: 10th September 2002

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Specialty Keywords: Fluorescent probes, Lipoprotein A-I, Lipid oxidation.

Research involves investigating protein-lipid interactions and their effect on structure/function using biophysical techniques such as polarized attenuated total internal reflectance Fourier transform infrared (PATIR-FTIR) and fluorescence spectroscopies. Current focus is on investigation of structure, orientation, and interaction of the protein and lipid components in high-density lipoprotein particles and the effect of oxidatively damaged lipids and acute phase response proteins (injury specific apolipoproteins) on reverse cholesterol transport.

Koppaka, V. Structural Studies of Discoidal Lipoprotein A-I. Cellular and Molecular Life Sciences. 58: 885-893, 2001.

Date submitted: 10th September 2002

Valentin I. Korotkov, Ph.D.



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St. Petersburg State University,
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198504, Russia.
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korotkov@paloma.spbu.ru

Specialty Keywords: Adsorption, Sensitization, Energy transfer.

Two quantum processes in photosensitized decomposition of water: 1/ as a result of energy transfer from high triplet levels of organic molecules (naphthalene, biphenyl, benzene) adsorbed on silica to dissociative triplet levels of water; 2/ promoted with the absorbed molecules of phthalocyanine and p-benzoquinone via formation of dark charge transfer complexes[1]. Studying of luminescence of surface molecules of various organic molecular crystals in comparison with the luminescence of bulk molecules of the same crystals [2].

A.V. Barmasov, V.I. Korotkov, V.Y. Kholmogorov (1994). Model photosynthetic system with charge transfer for transforming solar energy. *Biophysics*. **39**(2), 227-231.

E.P. Zarochentseva, V.I. Korotkov, Ya. P. Oleinik, V.Y. Kholmogorov (1996). Luminescence of benzoic acid polycrystals doped with bromated diphenils. *Optics and Spectros.* **81**(4), 570-573.

Date submitted: 29th August 2002

Yurii V. Korovin, Ph.D.



A.V. Bogatsky Physico-Chemical Institute,
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physchem@paco.net

Specialty Keywords: Lanthanides, IR-luminescence,
Macrocyclic ligands.

Current Research Interests: Design and investigation of lanthanide complexes with macrocyclic ligands of different types (e.g. porphyrines, calixarenes, ligands bearing aromatic antennae). New types of lanthanide complexes for use in biomedicine, in particular, as IR-luminescent markers.

Yu.Korovin and N.Rusakova (2002). Near Infrared Luminescence of Lanthanides in Complexes with Organic Dyes. *J. Fluorescence*. **12**, 159-161.

Yu.Korovin and N.Rusakova (2001). Infrared 4f-Luminescence of Lanthanides in the Complexes with Macrocyclic Ligands. *Rev. Inorg. Chem.* **21**, 299-329.

Kovalska, V. B.
Kraayenhof, R.

Date submitted: 8th September 2003

Vladyslava B. Kovalska, Ph.D.



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Specialty Keywords: Fluorescent probes, Cyanine dyes, Nucleic acids.

The research activities of Dr. V.Kovalska are aimed on the designing of fluorescent probes for nucleic acid and protein detection [1]. Now she is working as Department of Combinatorial Chemistry of Biological Active Compounds under the guiding of Dr. S.Yarmoluk. Her present researches are devoted to the characterization and studies of mechanism of fluorescent cyanine dyes – biopolymers interaction with the use of spectral-luminescent methods [2].

B.P.Matscelyukh, S.M.Yarmoluk, A.B.Matscelyukh, V.B. Kovalska, I.O.Kocheshev, D.V.Kryvorotenko, S.S. Lukashov (2003) *J. Biochem. Biophys. Methods* 57, 35-43.
S.M. Yarmoluk, V.B. Kovalska, I.O. Kocheshev (2002) *Journal of Fluorescence* 12, 155-157.

Date submitted: 11th September 2002

Ruud Kraayenhof, Ph.D.



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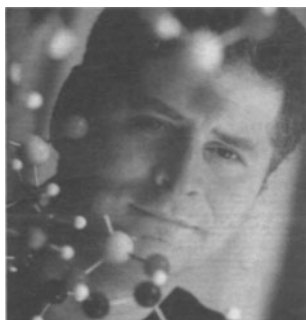
Specialty Keywords: Membranes, Protein dynamics.

Our research is focussed on (a) the structural dynamics of membrane proteins during catalytic action (e.g. ATP synthase), and (b) membrane surface properties, such as charge density, anisotropy, microviscosity and curvature, playing a role in the switching and regulation of protein functioning. Some new coumarin probes monitoring such membrane properties have been synthesized.

R. Kraayenhof, G.J. Sterk and H.W. Wong Fong Sang (1993) *Biochemistry* 32, 10057–10066.
R.M. Epand, R. Cornell, S.M.A. Davies and R. Kraayenhof (2002) in R. Kraayenhof, A.J.W.G. Visser, and H.C. Gerritsen (Eds.), *Fluorescence Spectroscopy, Imaging and Probes*, Springer Series on Fluorescence, Vol. 2, Springer Verlag, Heidelberg, pp. 263–276.

Date submitted: 6th August 2002

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Specialty Keywords: Spectroscopy, Fluorescent probes,
Realtime PCR.

Our research interest spans from characterization of molecular interactions by multidimensional spectroscopy (www.multid.se) to the development of fluorescent probes (www.lightup.se). Currently we design probes for real-time PCR applications and develop assays for accurate gene expression analysis in complex biological samples, including individual cells. We also develop Q-PCR assays for protein detection.

Eliminating the need for reference samples. *Critical Reviews in Anal. Chem.* 29, 1-28 (1999).
Light-up Probes. *Anal. Biochem.* 281, 26-35 (2000).

Date submitted: 23rd July 2003

Alexander V. Kukhta, Ph.D.



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Belarus.

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Specialty Keywords: Electron-molecular interaction, Organic
electroluminescence, Charge transport.

Luminescent properties of biological and electroactive organic molecules under irradiation by low-energy monokinetic electrons with variable energies from 0 to 100 eV. Physics of electron-molecular interactions and transport of electrons through different ordered and disordered organic media. Electroluminescence properties of low-molecular weight and polymer materials, new electroluminescent materials and structures.

A.V. Kukhta (2003). Electroluminescence of thin films of organic compounds *J.Appl.Spectrosc.* **70** (2), 165-194.

A.V.Kukhta, S.M.Kazakov, D.V.Murtazaliyev, D.V.Ritchik (2003). Interactions of low-energy electrons with organic electroactive compounds *Chem. Phys. Lett.* **373**, 492-497.

Kürner, J. M.
Kusumi, A.

Date submitted: 19th March 2003

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Specialty Keywords: Array-technology, Biotechnology,
Microscopy/Flow-Cytometry, Synthesis/Spectroscopy.

The Competence Center for Fluorescent Bioanalysis, which is affiliated to the University of Regensburg and is located in the BioPark Regensburg building, is a competent service provider of customer-oriented research and development. In addition to providing the diagnostic tools for research and development in pharmaceutical companies, the competence center focuses on customers in national and international biotechnology companies as well as private and public research institutes. The objective is to offer interdisciplinary research and development services in fluorescent bioanalysis in a unique network. This concept is based on the integration of components in chemistry, biology, medicine and engineering sciences through the utilization of the facilities for research and development at the University of Regensburg, the University of Applied Sciences of Regensburg and the University Hospital of Regensburg.

Date submitted: 31st August 2002

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www.supra.bio.nagoya-u.ac.jp

Specialty Keywords: Single molecules, Cell membrane, Signal transduction.

We develop single molecule techniques to be used for the study of live cells, such as single particle tracking and single fluorophore video imaging of membrane proteins, and single molecule dragging of membrane molecules using optical traps. Using these technologies, we study the mechanisms of signal transduction in the cell membrane, development of neuronal network, interaction of the membrane skeleton with membrane molecules, and formation and the functional mechanism of rafts, caveolae, and coated pits.

T. Fujiwara, K. Ritchie, K. Metz-Honda, K. Jacobson, and A. Kusumi. Phospholipids undergo hop diffusion in compartmentalised cell membrane. *J. Cell Biol.* 157, 1071-1081 (2002).

R. Iino, I. Koyama, and A. Kusumi. Single molecule imaging of GFP in living cells: E-cadherin forms oligomers on the free cell surface. *Biophys. J.* 80, 2667-2677 (2001).

Date submitted: 16th September 2002

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Department of Physiology and Biophysics,
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krypton.biomol.uci.edu/ladokhin.html

Specialty Keywords: Membrane protein insertion, Depth-dependent quenching, Red-edge effects.

My research focuses on understanding the structural and thermodynamic principles of insertion and assembly of membrane proteins and uses fluorescence as a principal tool. Over the years we have developed and applied fluorescence methods enabling us to characterize the depth of membrane penetration into the bilayer, the lipid exposure and cis/trans topology of particular sites as well as the conformational heterogeneity of membrane-inserted proteins and peptides. Reprints are available at: <http://blanco.biomol.uci.edu/reprints/index.html>.

A. S. Ladokhin (1999). Analysis of protein and peptide penetration into membranes by depth-dependent fluorescence quenching: Theoretical considerations. *Biophys. J.* 76:946-955.

A. S. Ladokhin, S. Jayasinghe and S. H. White (2000). How to measure and analyze tryptophan fluorescence in membranes properly, and why bother? *Anal. Biochem.* 285:235-245.

Date submitted: 20th August 2003

Joseph R. Lakowicz, Ph.D.



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Specialty Keywords: Fluorescence.

Current Research Interests: My research is focused on advancing the field of fluorescence spectroscopy. This involves chemical synthesis of new fluorophores, development of novel fluorescence measurements, development of instrumentation for time-resolved fluorescence, and the chemical applications of fluorescence sensing.

J. Malicka, I. Gryczynski and J. R. Lakowicz (2003). Enhanced emission of highly labeled DNA oligomers near silver metallic surfaces, *Anal. Chem.*, **75**(17), 4408-4414.

J. R. Lakowicz, J. Malicka, I. Gryczynski and Z. Gryczynski (2003). Directional surface plasmon-coupled emission: A new method for high sensitivity detection, *BioChem., BioPhys. Res Comm.*, **307**(3), 435-439.

Langner, M. J.
Laue, T. M.

Date submitted: 24th August 2002

Marek J. Langner, Ph.D.



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langner@rainbow.if.pwr.wroc.pl

Specialty Keywords: Supramolecular aggregates, Biosensors, Liposomes.

Applying fluorescence techniques to constructing, validating and determining properties of supramolecular aggregates including liposome based biosensors, lipoplexes and particulate drug carriers. Current research includes DNA condensation, surface electrostatics, aggregate topology, lipoplex association with cells and intracellular distribution. Fluorescence techniques used: Fluorescence spectroscopy, FCS, fluorescence microscopy, FACS.

S. W Hui, M. Langner, Y. L. Zhao, P. Ross, E. Hurley and K. Chan (1996) Biophys. J. 71, 590-599.

T. Kral, M. Langner, M. Benes, D. Baczynska and M. Hof (2002) Bioph. Chem. 95, 135-144.

Date submitted: 30th August 2002

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Specialty Keywords: Fluorescence optics, Analytical ultracentrifuge, Binding strength and Characterization.

CAMIS develops unique instruments to characterize molecular interactions such as a fluorescence detector for the AUF. BITC is an NSF Industry/University Cooperative Research Center composed of global pharmaceutical firms and instrument manufacturers.

Laue, T.M. and Stafford, W.F. III (1999) "Modern Applications of Analytical Ultracentrifugation," Annual Review of Biophysics and Biomolecular Structure V. 28, 75-100.

Laue, T.M., Anderson, A.L. and Weber, B.W. (1997) "Prototype Fluorescence Detector for the XLA Analytical Ultracentrifuge" in Ultrasensitive Clinical Laboratory Diagnostics, SPIE Proceedings, V. 2985, pp. 196-204, G. Cohn and S. Soper eds., SPIE, Bellingham, WA.

Date submitted: 13th September 2002

Robert P. Learmonth, Ph.D.



Department of Biological and Physical Sciences,
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Specialty Keywords: Multi-photon microscopy, Yeast, Membrane fluidity.

Research areas: yeast biotechnology, cell membrane biochemistry/biophysics, fluorescence spectroscopy and microscopy. Using yeast as a model system to investigate how cells react to changes in environment, focusing on cell membranes as the critically important structures in adaptation. Development of methods using novel fluorescent probes and multi-photon microscopy to study membrane status in single cells of yeasts, bacteria and other microbes.

Learmonth, R.P. and Gratton, E. Assessment of Membrane Fluidity in Individual Yeast Cells by Laurdan Generalized Polarization and Multi-Photon Scanning Fluorescence Microscopy. In *Fluorescence Spectroscopy, Imaging and Probes - New Tools in Chemical, Physical and Life Sciences* (R Kraayenhof, AJWG Visser and HC Gerritsen, Eds.), *Springer Series on Fluorescence: Methods and Applications*, Vol. 2, Springer, Heidelberg, 2002, Chapter 14, pp 241-252.

Date submitted: 8th July 2002

W. Jonathan Lederer, M.D., Ph.D.



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University of Maryland Biotechnology Institute,
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www.umbi.umd.edu/~mbc/pages/lederer.htm

Specialty Keywords: Heart, Confocal microscopy, Patch clamp, Calcium.

Work in the lab focuses on Ca^{2+} signaling in cardiac and other living cells. By combining confocal, multiphoton or wide-field microscopy with whole cell patch clamp techniques, we have been able to investigate the effects of subcellular and intracellular Ca^{2+} concentration ($[\text{Ca}^{2+}]_i$) on cellular function. Diverse additional tools are used as needed including flash photolysis of caged chemicals, multi-photon uncaging, single channel examination in planar lipid bilayers and by patch clamp, immuno-fluorescence imaging, use of cells from transgenic and gene knockout animals, and use of primary cultures and co-cultures. Much of the recent work focuses on "calcium sparks" and how the heart works in health and disease.

Nelson, M.T., Cheng, H., Rubart, M., Santana, L.F., Bonev, A., Knot, H. & Lederer, W.J. (1995). Relaxation of arterial smooth muscle by calcium sparks. *Science* 270:633-637.

Lee, T. S.
Lehmann, F.

Date submitted: 3rd September 2002

Thomas S. Lee, M.Sc.



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India.
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Specialty Keywords: Sol-gel, pH sensors, Fiber optic sensors.

I have carried out extensive research in the development of fiber optic sensors for chemical and physical applications. Chemical sensors include pH sensors based on dye impregnated sol-gel coatings. Also I have prepared bulk dye doped xerogels for quantum yield measurements, thermal lens spectroscopy and nonlinear applications in collaboration with other scientists.

Thomas Lee S, B Aneeshkumar, P Radhakrishnan, C P G Vallabhan and V P N Nampoori, *A microbent fiber optic pH sensor*, Opt. Comm **205**, 253 – 256 (2002).

Thomas Lee S, Nibu A George, P Sureshkumar, P Radhakrishnan, C P G Vallabhan and V P N Nampoori, *Chemical sensing with microbent optical fiber*, Opt. Lett., **20**, 1541-1543 (2001).

Date submitted: 30th August 2003

Frank Lehmann, Ph.D.



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Germany.

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Specialty Keywords: Biolabels, Probes, Multicolour assays, FRET, HTS.

My current research interest is focussed on fluorescent labels for biological targets. I am involved in the design and customizing of reactive fluorophores with respect to their (photo)physical properties. The chromophores are mostly based on polymethines with cumarin or benzopyrylium heterocycles allowing easily to generate emission in the red and NIR region.

P. Czerney, F. Lehmann, M. Wenzel, V. Buschmann, A. Dietrich and G.J. Mohr (2001). Tailor-Made Dyes for Fluorescence Correlation Spectroscopy *Biol. Chem.* 382(3) 495-498.

P. Czerney, M. Wenzel, F. Lehmann and B. Schweder (2003). Compound, in particular marker-dye, based on polymethines *EP1318177A2*.

Date submitted: 21st August 2002

Barry R. Lentz, Ph.D.



Department of Biochemistry & Biophysics CB#7260,
Molecular and Cellular Biophysics,
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hekto.med.unc.edu:8080/FACULTY/LENTZ/lab.html

Specialty Keywords: Membrane Probes, Phase Fluorescence,
Fusion Assays.

Dr. Lentz's lab uses fluorescence spectroscopy to examine protein-lipid interaction involved in prothrombin activation during blood coagulation. The lab has shown that specific sites on blood coagulation proteins recognize phosphatidylserine, and that this lipid, which is exposed during platelet activation, regulates these proteins. Lentz's lab is also a leader in the application of fluorescence methods to studying the kinetics of lipid rearrangements during membrane fusion. Using these methods, the Lentz lab has developed a model for the mechanism of fusion as it occurs in model membranes and may well occur in biological membranes during such processes as viral infection and neurotransmitter release.

Date submitted: 22nd August 2002

Panagiotis Lianos, Ph.D.



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Specialty Keywords: Applied Photophysics and
Photochemistry.

Recent research focuses on the study of photophysical and photochemical applications of nanocomposite organic/inorganic materials made by soft chemistry procedures (sol-gel method). Applications include dye-sensitized photoelectrochemical cells, photocatalytic metal oxide surfaces and new photoluminescence and electroluminescence light sources based on ligand-lanthanide ion complexes.

E. Stathatos, P.Lianos and Ch.Krontiras (2001) J.Phys.Chem. B. 105, 3486-3492.

V.Bekiari and P.Lianos (2000) Adv.Mater. 12, 1603-1605.

Lilley, D. M. J.
Lillo, M. P.

Date submitted: 6th August 2002

David M. J. Lilley, Ph.D.



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www.dundee.ac.uk/biocentre/nasg/

Specialty Keywords: FRET, Nucleic acid structure.

Our interests are directed at the structure and folding of branched nucleic acids; the four-way junction in DNA, and a variety of structures (especially ribozymes) in RNA. Our main biophysical approach is fluorescence resonance energy transfer (FRET), in steady state, time-resolved and single-molecule modes.

D.A. Lafontaine, D.G. Norman and D. M.J. Lilley. The global structure of the VS ribozyme. *EMBO J.* 21, 2461-2471 (2002).

T.J. Wilson and D.M.J. Lilley Metal ion binding and the folding of the hairpin ribozyme RNA 8, 587-600 (2002).

Date submitted: 24th July 2003

M. Pilar Lillo, Ph.D.



Instituto Química Física "Rocasolano",
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Serrano 119, 28006 Madrid,
Spain.

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Specialty Keywords: Time-resolved fluorescence, FRET, Biomolecular interactions.

Current interest: i) Design of fluorescence anisotropy and FRET methodologies for ligand binding (α IIb β III-Fab/Fibrinogen), and protein-DNA (RepA) interaction studies. Application to crowded media. ii) Structural and dynamical characterization of symmetrical homopolymers by Förster resonance energy transfer (FRET).

M.P.Lillo, O.Cañadas, R.E.Dale, A.U.Acuña (2002). The location and properties of the taxol binding center in microtubules: a ps laser study with fluorescent taxoids. *Biochemistry* 41, 12436-12449.

M.P. Lillo, B.K.Szpikowska, M.T.Mas, J.D.Sutin and J.M.Beechem (1997). Real-time measurement of multiple intramolecular distances during protein folding reactions: a multisite stopped-flow FRET study of PGK. *Biochemistry* 36, 11273-11281.

Date submitted: 31st August 2002

Marcin Lipski, Ph.D.



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www.put.poznan.pl

Specialty Keywords: Photochemistry & Molecular Spectroscopy
of Humic Acids & Precursors-Hydroxybenzotropolones.

Current Research Interests: Fluorescence of humic acids and unusual precursors - purpurogallin (2,3,4,6-tetrahydroxy-5H-benzocyclohepten-5-one, hydroxybenzotropolone) and its analogues formed from the polyphenols.

M. Lipski (2002). Fluorescence emitted during the autooxidation of 2,3,4,6-tetrahydroxy-5H-benzocyclohepten-5-one, *Journal of Fluorescence*, **12**(1), 83-86.

M. Lipski, K. Gwozdziński, J. Sławinski (2000). Free radical of the semiquinone type generated in the redox reaction of hydroxybenzotropolone, *Current Topics in Biophysics*, **24**(2), 115-120.

M. Lipski, J. Sławinski, D. Zych (1999). Changes in the luminescent properties of humic acids induced by UV-radiation, *Journal of Fluorescence*, **9**(2), 133-138.

Date submitted: 30th August 2002

Burton J. Litman, Ph.D.



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National Institutes of Health, 12420 Parklawn Drive, Rm 114,
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Specialty Keywords: Membrane structure, Fluorescent probes,
GPCR signaling systems.

Research interests focus on the effect of lipid composition on GPCR signaling, using the visual transduction system as a model. The role of polyunsaturated phospholipids and cholesterol in modulating signaling and domain formation is investigated. Membrane phospholipid acyl chain packing and domain formation are monitored using various fluorescence techniques.

S-L Niu, D. C. Mitchell, and B. J. Litman (2002) Manipulation of Cholesterol Levels in Rod Disk Membranes by Methyl- β -cyclodextrin. Effects On Receptor Activation, *J. Biol. Chem.* **277**: 20139-20145.

A. Polozova and B. J. Litman (2000) Cholesterol Dependent Recruitment of di22:6-PC by a G Protein-Coupled Receptor into Lateral Domains, *Biophys. J.* **79**, 2632-2643.

Little, G. M.
Lloyd, D.

Date submitted: 3rd September 2002

Garrick M. Little, Ph.D.



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Nebraska, 68504,
USA.

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Specialty Keywords: Protein labeling, Western blot assay, DNA labeling.

My research interests include the synthesis of Infra-red fluorescent dyes functionalized as the amidite, NHS ester etc. Labeling of biological molecules with fluorescent dyes. More generally Organic chemistry synthesis, synthesis of DNA.

Date submitted: 4th September 2002

David Lloyd, Ph.D., D.Sc.



Microbiology (BIOSI 1, Main Bldg),
Cardiff University,
P.O. Box 915,
Wales, U.K.

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lloyd@cardiff.ac.uk

Specialty Keywords: Bioenergetics, Mitochondria, Oscillations.

Mitochondrial inner membrane electrochemical potential measurements have been used to investigate the respiratory oscillations that indicate the operation of the ultradian clock in yeasts and protists. Plasma membrane potential measurements quantify perturbation of organisms by inhibitors, biocides and antibiotics to provide an indication of vitality (e.g. for fermentative efficiency in yeast inocula for commercial processes) or loss of viability (e.g. as an indicator of antibiotic sensitivity).

Lloyd, D. *et al.* (2002) Cycles of mitochondrial energization driven by the ultradian clock in continuous culture of *Saccharomyces cerevisiae*. *Microbiology* **148**, in press.

Suller, M.T.E. and Lloyd, D. (2002) The antibacterial activity of Valinomycin towards *Staphylococcus aureus* under aerobic and anaerobic conditions. *J. Appl. Bact.* **92**, 866-72.

Date submitted: 26th August 2002

Leslie M. Loew, Ph.D.



Center for Biomedical Imaging Technology,
University of Connecticut Health Center,
Farmington, CT 06030 1507,
USA.

Tel: 860 679 3568 Fax: 860 679 1039
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www.cbit.uchc.edu/

Specialty Keywords: Non-linear optical microscopy, Dye synthesis, Cell physiology.

We have a long-standing effort on the synthesis of voltage-sensitive dyes which has recently led us to develop dyes and optical systems for second harmonic imaging microscopy. We have also been developing a computational system called “Virtual Cell” for modeling and simulating cellular events based on microscope images. Our biological research focuses on mapping the electrical profiles along cell surfaces and exploring their cell physiological implications.

Slepchenko B, Schaff JC, Carson JH, Loew LM. 2002. Computational cell biology: spatiotemporal simulation of cellular events. *Annual Review of Biophysics & Biomolecular Structure* 31:423-441.

Campagnola, P. J., H. A. Clark, W. A. Mohler, A. Lewis, and L. M. Loew. 2001. Second Harmonic Imaging Microscopy of Living Cells, *J. Biomedical Optics*, 6:277-286.

Date submitted: 15th August 2003

Piet H. M. Lommerse



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The Netherlands.

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Specialty Keywords: Single-molecule, Fluorescence, Microscopy.

In the last decade evidence has accumulated that small domains (26-700 nm diameter) are located in the plasma membrane. Using wide-field fluorescence microscopy with single-molecule sensitivity, the diffusion of individual membrane-anchored eYFP molecules is studied in live cells at the millisecond timescale, to reveal the intricate details of membrane organization and its role in signal transduction.

Gregory S. Harms, Laurent Cognet, Piet H.M. Lommerse, Gerhard A. Blab and Thomas Schmidt (2001) *Biophysical Journal*, **80**, 2396-2408.

Lopez, A.
Losytskyy, M. Y.

Date submitted: 28th August 2002

André Lopez, Ph.D.



Institut de Pharmacologie et de Biologie Structurale du CNRS,
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France.

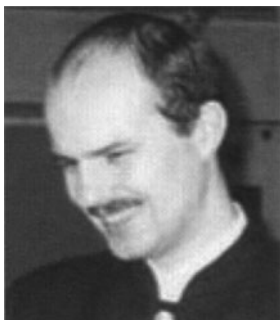
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Specialty Keywords: Membrane probes, Multichromophoric systems, Biomembranes.

Functional consequences of membrane composition and microcompartmentation in connection with the translational dynamics of lipids and proteins on the chain of signal transduction by G protein-coupled receptors. These studies are carried out on human receptors μ , CCR5, CXCR4 expressed in various cell types. Are investigated: (i) the influence of lipid environmental factors on receptor activity, (ii) the lateral dynamics and compartmentations of these membrane compounds using fluorescence techniques (FRAP, SPT), (iii) the structure *in situ* of these pluri-molecular systems by means of spectromicrofluorescence approaches (FRET, polarity probes).

Date submitted: 30th August 2003

Mykhaylo Yu. Losytskyy, M.Sc.



Institute of Molecular Biology and Genetics of NAS of
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Specialty Keywords: Energy transfer, J-aggregate, Cyanine dye.

The studies of M. Losytskyy are aimed on the designing of fluorescent probes for nucleic acid and protein detection. Now he is working in the Department of Combinatorial Chemistry of Biological Active Compounds under the guiding of Dr. S.Yarmoluk. His present studies are devoted to electronic excitation energy transfer in DNA-cyanine dye system; photophysics of the excited cyanine dye molecules [1]; and J-aggregates of cyanine dye formed on nucleic acids [2].

M. Yu. Losytskyy, V. M. Yashchuk, S. S. Lukashov, S. M. Yarmoluk (2002) *Journal of Fluorescence* 12, 109-112.

S.M. Yarmoluk, M.Yu. Losytskyy, V.M. Yashchuk (2002) *J. Photochem. Photobiol. B.* 67, 57-63.

Date submitted: 11th September 2002

Luís M. S. Loura, Ph.D.



Centro de Química-Física Molecular, IST,
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1049-001 Lisbon,
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Specialty Keywords: FRET, Lipid domains, Lipid protein-interaction.

Current Research Interests: Study of membrane heterogeneities (domains/rafts) using photophysical methodologies. Derivation of kinetic models for FRET in restricted geometries. Development of software for global analysis of fluorescence decays. Topology and dynamics of protein/peptide interaction with model systems of membranes. Cholesterol organization in membranes. Characterization of DNA/cationic lipid complexes.

L. M. S. Loura, A. Fedorov and M. Prieto (2001) *Biophys. J.* **80**, 776-788.

L. M. S. Loura, R. F. M. de Almeida and M. Prieto (2001) *J. Fluorescence* **11**, 197-209.

Date submitted: 16th October 2003

Joanna Lukomska, Ph.D.



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Dept. of Biochemistry and Molecular Biology,
University of Maryland School of Medicine,
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Specialty Keywords: Asymmetric synthesis, Steady-state fluorescence, Metal-enhanced fluorescence.

My expertise includes synthesis of tyrosine derivatives, photophysical properties of phenylalanine and tyrosine derivatives and their analogues, synthesis of unnatural amino acids using asymmetric synthesis, design and multi-step synthesis of cyclic peptides in solution, analysis and characterization of synthetic peptides. I have significant experience in clinical assays preparation. My current interest is focused on metal-enhanced fluorescence to develop ultrabright particles for biomedical imaging.

Influence of a substituent on amide nitrogen atom on fluorescence efficiency quenching of Tyr(Me) by amide group.

Lukomska J., Rzeska A., Malicka J., Wiczak W., *Journal of Photochemistry and Photobiology A: Chemistry* **143**, 2001.

Malicka, J.
Margeat, E.

Date submitted: 12th September 2002

Joanna Malicka, Ph.D.



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Specialty Keywords: FRET, Metal-enhanced fluorescence,
Conformational analysis of peptides.

My expertise includes multi-step synthesis of peptides and fluorophore derivatives of amino acids as well as a conformational analysis of bioactive peptides by using NMR spectroscopy and FRET. I have experience in steady-state and time-resolved fluorescence measurements and in metallic colloids and surface preparation. My current interest is focused on metal-fluorophore interactions in solution and on surfaces and their application to a new generation of very efficient biological assays based on enhanced-fluorescence and changes of FRET efficiency near silver particles.

Radiative decay engineering. 2. Effects of silver island films on fluorescence intensity, lifetimes, and resonance energy transfer (2002). Lakowicz J.R., Shen Y., D'Auria S., Malicka J., Fang J., Gryczynski Z., Gryczynski I., *Anal. Biochem.*, 301, 261-2.

Date submitted: 1st September 2002

Emmanuel Margeat, Ph.D.



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CA 90095, USA.
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Specialty Keywords: FRET, Polarization, Single molecule.

My objective is to elucidate the structure and dynamics of protein / protein and protein / nucleic acids complexes using a combination of novel single-molecule fluorescence microscopy methods (such as spFRET, fluorescence anisotropy) and traditional biochemistry. My research focuses on macromolecular complexes involved in transcription, including nuclear receptors, coactivators, and RNA polymerase.

Margeat E., Poujol N., Boulahtouf A., Chen Y., Gratton E., Cavaillès V. and Royer C. "The Estrogen Receptor binds a single SRC-1 coactivator molecule with an affinity dictated by the agonist structure." *Journal of Molecular Biology*, 306 (3):433-442 (2001).

Date submitted: 5th September 2002

Mark Maroncelli, Ph.D.



Department of Chemistry, Penn State University,
152 Davey Laboratory, University Park,
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USA.

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Specialty Keywords: Time-resolved fluorescence, Ultrafast spectroscopy, Solution dynamics.

We use steady-state and ultrafast fluorescence spectroscopy and computer simulations to explore solvation and its influence over chemical processes in liquid solvents and supercritical fluids.

J. Lewis, R. Biswas, A. Robinson, and M. Maroncelli (2001)., Local Density Augmentation in Supercritical Fluids: Electronic Shifts of Anthracene Derivatives *J. Phys. Chem. B* **105**, 3306.

M. L. Horng, J. A. Gardecki, A. Papazyan, and M. Maroncelli (1995)., Sub-Picosecond Measurements of Polar Solvation Dynamics: Coumarin 153 Revisited *J. Phys. Chem.* **99**, 17311.

Date submitted: 12th September 2002

José M. G. Martinho, Ph.D.



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Specialty Keywords: Photophysical kinetics, Resonance energy transfer, Polymers, Colloids.

Current interests: Conformation and dynamics of proteins and oligonucleotides adsorbed onto latex particles. Photophysical kinetics (early work included the study of transient effects in pyrene monomer–excimer kinetics). Radiative transport in scattering media. Conformations and aggregation of polymers in solutions. Interfaces in polymer systems.

J. M. G. Martinho, J. P. Farinha, M. N. Berberan-Santos, J. Duhamel, M. A. Winnik (1992). Test of a model for reversible excimer kinetics: Pyrene in cyclohexanol, *J. Chem. Phys.* **96**, 8143.

S. Piçarra, J. M. G. Martinho (2001). Viscoelastic effects on dilute polymer solutions phase demixing: Fluorescence study of a poly(ϵ -caprolactone) chain in THF, *Macromolecules* **34**, 53.

Masuko, M.
Mateo, C. R.

Date submitted: 3rd September 2002

Masayuki Masuko, Ph.D.

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Specialty Keywords: Nucleic acids, Excimer fluorescence, Photon counting.

I am interested in the application of aromatic hydrocarbon dyes to the detection of biological substances such as nucleic acids, and the development of instruments useful to their measurements.

M. Masuko, H. Ohtani, K. Ebata and A. Shimadzu (1998) Optimization of excimer-forming two-probe nucleic acid hybridization method with pyrene as a fluorophore *Nucleic Acids Res.* **26** (23), 5409-5416.

M. Masuko, S. Ohuchi, K. Sode, H. Ohtani and A. Shimadzu (2000) Fluorescence resonance energy transfer from pyrene to perylene labels for nucleic acid hybridization assays under homogeneous solution conditions *Nucleic Acids Res.* **28** (8), e34.

Date submitted: 29th August 2003

C. Reyes Mateo, Ph.D.



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Specialty Keywords: Lipid membranes, Biosensors, Time-resolved fluorescence depolarization.

- Structure and dynamics of lipid membranes from time-resolved fluorescence depolarisation.
- Interaction, location and dynamics of proteins, peptides and small bioactive molecules in phospholipid model membranes.
- Encapsulation of macromolecules in sol-gel matrices.
- Design and characterization of fluorescent biosensors with application in clinical diagnosis.

J.A. Poveda, M. Prieto, J.A. Encinar, J.M. González-Ros and C. R. Mateo (2003). Intrinsic tyrosine fluorescence as a tool to study the interaction of the shaker B “ball” peptide with anionic membranes. *Biochemistry* **42**, 7124-7132.

Date submitted: 17th September 2002

Gerard Mathis, D.Sc.

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France.

Tel: 33 (0) 46 679 6771 Fax: 33 (0) 46 679 1920
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Specialty Keywords: Rare earth cryptates synthesis and fluorescence, FRET, Biomolecular interactions.

Current interests: Design of luminescent rare earth cryptates and photophysical studies.
Research of fluorescence based techniques for probing interactions between biomolecules.
Research and development of methods based on the use of long lived fluorophores and
Fluorescence resonance energy transfer. Applications in cellular and molecular biology.

H.Bazin,E.Trinquet,G.Mathis (2002). Time Resolved Amplification of Cryptate Emission: a Versatile Technology to Trace Biomolecular Interactions. Reviews in Molecular Biotechnology 82, 233-250.

Date submitted: 21st August 2002

János Matkó, Ph.D., D.Sc.



Department of Immunology, Eotvos Lorand University,
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Specialty Keywords: Microscopy, Flow cytometry, FRET.

Developing / applying fluorescence techniques (e.g. FRET, FPR, polarization) in studies of supramolecular organization / mobility of receptor and signals proteins, as well as lipid rafts at the surface (plasma membrane) of immunocompetent cells, investigations on the functional role of protein clustering.

Techniques: Fluorescence Resonance Energy Transfer w. flow cytometry/pbFRET microscopy; confocal microscopy, SNOM, FPR, time-resolved phosphorescence spectroscopy).

Matkó J., Edidin, M., *Methods in Enzymology*, Vol.278, 444-462 ,1997.

Vereb, G., Matkó, J., et al., *Proc. Natl. Acad. Sci. USA*, 97, 6013-6018, 2000.

Mattheis, J. R.
Matveeva, E. G.

Date submitted: 9th September 2002

James R. Mattheis, Ph.D.



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Specialty Keywords: Photon-counting, Frequency-domain.

Managing a team of scientists providing fluorescence applications support, training and new methods development for users of SPEX spectrofluorometers. Support is provided for all users interested in applying high sensitivity photon-counting, steady-state fluorescence spectroscopy, fluorescence microscopy and picosecond time-resolved, frequency-domain methods to their own research projects.

Date submitted: 27th June 2003

Evgenia G. Matveeva, Ph.D.



Center for Fluorescence Spectroscopy,
University of Maryland School of Medicine,
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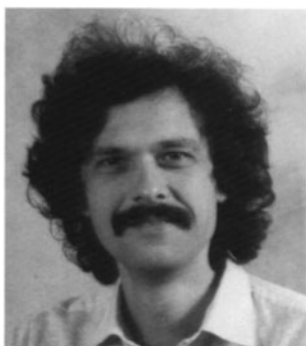
Specialty Keywords: Immunoassays, Fluorescence.

Research focused on immunoassay development -lateral-flow membrane immunoassays, bead-based immunoassays, agglutination immunoassays using fluorescent labels and latex beads, or enzymes as labels. Recent research includes metal-enhanced fluoroimmunoassays and immunoassays using surface plasmon coupled emission. Antigens of interest are: pesticides (paraoxone, atrazine, propazine, dioxin, pyrethroids), disease biomarkers (PSA, steroids, coproporphyrin, cardiac markers Myoglobin, CK-MB, troponin I), pregnancy marker (hCG). Matveeva E. G., Nelen M. I., Lobanov O. I., and Savitsky A. P. (2003). *J. of Fluorescence*, 13, No 1, 79-87.

Matveeva E.G., Shan G., Kennedy I.M., Gee S.J., Stoutamire D.W., and Hammock B.D. (2001): *Anal. Chim. Acta*, v.444, 103-117.

Date submitted: 7th July 2002

László Mátyus, M.D., Ph.D.



Department of Biophysics and Cell Biology,
University of Debrecen,
Nagyterdei krt 98, Debrecen,
H-4012, Hungary.
Tel / Fax: +365 241 2623
lmatyus@jaguar.dote.hu

Specialty Keywords: Fluorescence resonance energy transfer.

My research interest is to study the distribution and conformation of cell surface receptors using various fluorescence techniques, such as flow cytometric energy transfer measurements or different microscopies.

L. Mátyus, L. Bene, J. Hársfalvi, M.V. Alvarez, J. González-Rodríguez, A. Jenei, L. Muszbek, and S. Damjanovich, (2001). Organization of the glycoprotein (GP) IIb/IIIa heterodimer on resting human platelets studied by flow cytometric energy transfer *J. Photochem. Photobiol. B: Biol.* **65** 47-58.

P. Nagy, L. Mátyus, A. Jenei, G. Panyi, S. Varga, J. Matkó, J. Szöllősi, R. Gáspár, T.M. Jovin, and Damjanovich (2001). Cell fusion experiments reveal distinctly different association characteristics of cell surface receptors *J. Cell. Sci.* **114** 4063-4071.

Date submitted: 27th June 2003

Vladimir M. Mazhul, Ph.D.



Laboratory of Protein Photonics, Institute of Photobiology,
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Belarus, 220072, Belarus.
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mazhul@biobel.bas-net.by

Specialty Keywords: Room temperature phosphorescence.

Specialist in the fields of studying proteins and lipid peroxidation (LPO) products by fluorescence and room temperature phosphorescence techniques. The systematic investigations of millisecond internal dynamics of proteins in solution and composition of cell membrane by room temperature tryptophan phosphorescence technique had been carried out. By room temperature phosphorescence method the heterogeneity of LPO products accumulation in bulk and annular lipids of the cellular membrane has been shown.

V.M. Mazhul', E.M. Zaitseva, D.G. Shcharbin and I.V. Halets (2003) *J.Apl.Spec.* **70**, pp. 346-350.

Mazzini, A.
Mazzuca, C.

Date submitted: 26th August 2002

Alberto Mazzini, Ph.D.



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mazzini@fis.unipr.it

Specialty Keywords: Protein folding, Binding analysis of probes to proteins, Time Correlated Single Photon Counting.

My present research interest is to study denaturation and renaturation mechanisms of proteins. Unfolding is induced by chemical denaturants and refolding is achieved by recovery of native experimental conditions. Intrinsic and extrinsic fluorescence is studied both by stationary and time resolved techniques (TCSPC). In the case of simple monomeric or dimeric proteins such as odorant binding proteins (OBP), the thermodynamic and kinetic analysis allows to elucidate the unfolding/refolding mechanism.

A.Mazzini, A.Maia, M.Parisi, R.T.Sorbi, R.Ramoni, S.Grolli, R.Favilla (2002) *Biochim.Biophys Acta* 1599, 82-93.

R.Favilla, M.Goldoni, A.Mazzini, P. Di Muro, B.Salvato, M.Beltramini (2002) *Biochim.Biophys Acta* 1597, 42-50.

Date submitted: 30th August 2002

Claudia Mazzuca, (Ph.D. Student)



Department of Chemical Sciences and Technologies,
University of Roma Tor Vergata,
Via della ricerca scientifica, 00133, Roma,
Italy.

Tel: +39 067 259 4469 Fax: +39 067 259 4328
sopwithcamel76@hotmail.com

Specialty Keywords: Peptide structure, Foldamers, Peptide-membrane interactions.

My research activity within the group of professor Pispisa B. is focused on the use of fluorescence spectroscopy to investigate the interaction of antibiotic peptides with membranes and their mode of action.

I am interested also in determining the structure of synthetic, unusual amino acid based oligopeptide as foldamers.

B. Pispisa et al. (2000) Structural features of linear (α Me)Val-based peptides in solution by photophysical and theoretical conformational studies. *Biopolymers* **55**, 425-435.

B. Pispisa et al. (2002) Effect of distortions on the optical properties of Amide NH Infrared Absorption in short peptide in solution. *J. Phys. Chem B* **106**, 5733-5738.

Date submitted: 22nd August 2002

Weiping Mei, Ph.D.



Head of Biophotonics,
R&D cosmed, Beiersdorf AG,
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www.beiersdorf.com & www.nivea.de

Specialty Keywords: Biophotonics, Ultraweak photon emission, Chemiluminescence.

Research and methods development on the basis of detecting photons from human skin directly *in vivo*. The most interests is on the application of using optical technique for understanding photophysics and photochemistry of skin and efficacy test of skin care product.

W.P. Mei (1994) About the Nature of Biophotons. *Journal of Biological Systems*, Vol. 2, 25-42.

Sauermann G., Mei W.P., Hoppe U. and Stäb F.: Ultraweak Photon Emission of Human Skin *in vivo* - Influence of topically applied antioxidants on human skins. *Oxidants & Antioxidants, Part B, Methods in Enzymology*, Volume 300 (1999), p 419-428.

Date submitted: 28th August 2003

Yves Mely, Ph.D.



Université Louis Pasteur, UMR 7034 CNRS,
Faculté de Pharmacie, 74 route du Rhin,
67401 Illkirch,
France.

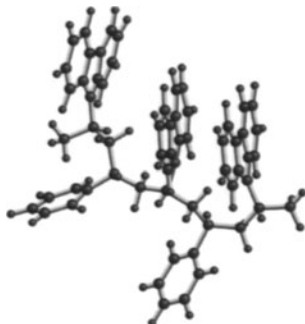
Tel: 33 (0) 39 024 4263 Fax: 33 (0) 39 024 4213
mely@pharma.u-strasbg.fr
umr7034.u-strasbg.fr/

Specialty Keywords: Time-resolved fluorescence, Fluorescence correlation spectroscopy, Protein interactions.

The research of my team is mainly focused on the investigation by fluorescence techniques of the interaction of proteins (mainly HIV nucleocapsid protein) with ligands (ions, nucleic acids, peptides). We also investigate the physico-chemical properties and intracellular fate of complexes of DNA with nonviral vectors. More recently, we have developed a platform with TPE that combines FCS, time-resolved fluorescence, microspectrofluorimetry and imaging. J.P. Clamme, J. Azoulay & Y. Mély (2003). Monitoring of the formation and dissociation of polyethyleneimine/DNA complexes by two photon FCS. *Biophys J.*, 2003, **84**, 1960-1968. H. Beltz, J. Azoulay, S. Bernacchi, J.P. Clamme, D. Ficheux, B.P. Roques, J.L. Darlix & Y. Mély (2003). Impact of the terminal bulges of HIV-1 cTAR DNA on its stability and the destabilizing activity of the nucleocapsid protein NCp7. *J. Mol. Biol.*, **328**, 95-108.

Mendicuti, F.
Mérola, F.

Date submitted: 4th September 2002



Francisco Mendicuti, Ph.D.

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Ctra Madrid-Barcelona Km 33.6,
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Madrid, Spain.
Fax: 34 91 885 4763
francisco.mendicuti@uah.es

Specialty Keywords: Excimers, Energy transfer, Polymers, Inclusion Complexes, Molecular Mechanics, Molecular Dynamics.

We apply the steady state and time-resolved fluorescence techniques, as well as various theoretical methods for the study of some conformational properties in polymer systems and the inclusion processes of small molecules and polymers with cyclodextrins. Comparison of the theoretical and experimental results allow us to learn more about the conformations and dynamics of polymeric systems and the driving forces and thermodynamics accompanying complexation processes.

Gallego, J., Pérez-Foullerat, D., Mendicuti, F., Mattice, W.L. *J. Polym. Sci. Polym.Phys. Ed* **2001**, 39, 1272.

Pastor, I.,Dimarino, A., Mendicuti, F. *J. Phys. Chem. B* **2002**, 106(8), 1995.

Date submitted: 3rd September 2002



Fabienne Mérola, Ph.D.

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www.lcp.u-psud.fr

Specialty Keywords: Protein dynamics, Cell signaling, Time-resolved spectroscopy.

I work to the development of new cell imaging and diagnosis methods based on time-resolved fluorescence: A thorough background in the physics and chemistry of proteins in solution is the basis for original approaches of their dynamics and interactions inside the living cell. We use single and two-photon laser excitation, combined with FRET and FLIM techniques, to investigate the regulation of ion channels involved in synaptic communication and muscle contraction, and, more recently, the structure-photophysics relationship in fluorescent proteins.

Martinez et al. (2002) "Allosteric transitions of *Torpedo* acetylcholine receptor in lipids, detergent and amphipols: molecular interactions vs. physical constraints", *FEBS Lett.* in press.

Guiot et al. (2000) "Molecular dynamics of biological probes by fluorescence correlation microscopy with two-photon excitation", *J. Fluorescence* **10**, 413-419.

Date submitted: 30th August 2002

Svetlana B. Meshkova, D.Sc., Ph.D.



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Coordination Compounds, A.V. Bogatsky Physico-Chemical
Institute of National Academy of Sciences of Ukraine,
National Academy of Sciences of Ukraine.
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Tel: +38(0482) 652 042 Fax: +38(0482) 652 012
physchem@paco.net

Specialty Keywords: Fluorescence, Energy Transfer, Lanthanide Complexes.

Current Research Interests: Design and investigation of photochemical properties of lanthanide complexes in solution and solid matrix. Investigation of connection between the composition, stability and optical properties of complexes and characteristics of lanthanide ions and ligands. Study of new means for elimination of intra- and intermolecular energy losses and its realization in luminescent analysis.

S.B. Meshkova (2000). The Dependence of the Luminescence intensity of Lanthanide Complexes with β -Diketones on the Ligand Form: *J. of Fluorescence*, 10(4), 333-337.

S.B. Meshkova, Z.M. Topilova, D.V. Bolshoy, S.V. Beltyukova, M.P. Tsvirko and V.Ya. Venchikov (1999). Quantum Efficiency of the Luminescence of Ytterbium (III) β -Diketonates: *Acta Phys. Polonica A*, 95(6), 983-990.

Date submitted: 22nd August 2003

Olaf Minet, Ph.D.



Charité – Universitätsmedizin Berlin / Campus Benjamin,
Franklin.
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minet@zedat.fu-berlin.de
www.fu-berlin.de

Specialty Keywords: Optical Biopsy, Optical Molecular Imaging, Quantum dots, Image processing and analysis.

Current Research Interests: My research is focused on advancing fluorescence applications in medicine. This involves native autofluorescence compounds like NADH in Optical Biopsy, synthetic markers in Optical Molecular Imaging and Quantum dots as well. Of special interest are investigations in the field of image processing, i.e. for eliminating the effects of tissue optics like absorption and scattering on the fluorescence signal, also called rescaling.

J. Beuthan, O. Minet, G. Müller (1998): Optical Biopsy of Cytokeratin and NADH in the Tumor Border Zone. *Annals New York Academy Sciences*, **838**, 150-170.

O. Minet, J. Beuthan, K. Licha et al. (2002): The biomedical use of rescaling procedures in Optical Biopsy and Optical Molecular Imaging. In: *Springer Series on Fluorescence Methods and Applications*, Vol. 2, Springer. Berlin, Heidelberg, N.Y.

Mirochnik, A. G.
Mishra, H.

Date submitted: 18th August 2003

Anatolii G. Mirochnik, Ph.D.



Far-Eastern Branch of the Russian Academy of Sciences,
Institute of Chemistry,
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Tel: (4232) 310 466 Fax: (4232) 311 889
mirochnik@ich.dvo.ru

Specialty Keywords: Fluorescence, Polymer photochemistry.

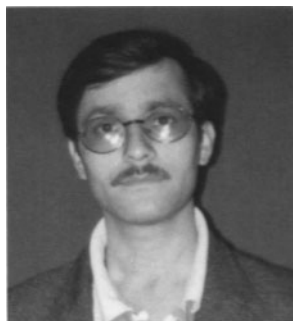
Design and investigation of fluorescence and photochemical properties of lanthanide and p-elements (boron, s^2 – ions) complexes. Study of photochemical reaction mechanisms, ascertainment of correlations between spectroscopic parameters and molecular structure.

Mirochnik A.G., Bukvetskii B.V., Gukhman E.V., Karasev V.E. Crystal structure and excimer fluorescence of some benzoylacetateboron difluorides: stacking factor, 2003, J.Fuoresc., **13**, 157-162.

Mirochnik A.G., Bukvetskii B.V., Storozhuk T.V., Karasev V.E. Crystal structure and luminescence and thermochromic properties of tellurium (IV) halide complexes with N,N – diphenylguanidine, 2003, Russ.J.Inorg.Chem., **48**, 501-510.

Date submitted: 13th September 2002

Hirdyesh Mishra, Ph.D.



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Department of Physics,
Kumaun University,
Nainital – 263 002, India.
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hirdyesh@yahoo.com

Specialty Keywords: Time-domain fluorescence spectroscopy of H-bonded molecular system and its applications, Theoretical computation, Instrumentation.

Research Interest: My basic research interest is to understand various photo-induced electronically excited state relaxation processes viz. ESPT, ET, TICT, EERS etc through experimental and theoretical investigations and its applications as fluorescence sensors, lasing materials, luminescence collectors, memory devices etc. In some hydrogen bonded molecular system in polymers. Besides this I am also interested to design and fabrication of instruments and programming for computation.

An optical approach for sensing pH based on energy transfer in nafion matrix. V. Mishra, H. C. Joshi and T.C. Pant: Sens. Accut. 82 (2002) 133-141.

Date submitted: 12th August 2002

Tom Misteli, Ph.D.



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41 Library Drive, Bldg. 41, B610,
Bethesda, MD 20892,
USA.

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rex.nci.nih.gov/RESEARCH/basic/lrbge/cbge.html

Specialty Keywords: Living cells, Photobleaching, Modelling.

My laboratory uses photobleaching, in situ hybridization and FCS methods to study nuclear architecture and genome expression in vivo. We make extensive use of kinetic modeling methods to analyze in vivo microscopy data.

Phair R.B and T. Misteli, High mobility of proteins in the mammalian cell nucleus. *Nature*, 404, 604-609 (2000).

Phair R.B. and T. Misteli, Kinetic modeling approaches to in vivo microscopy, *Nature Rev. Mol. Cell Biol.*, 2, 898-907 (2001).

Date submitted: 12th August 2002

Ihab Kamal Mohamed, Ph.D.



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Ain-Shams Uni., Cairo, Egypt, Tel: +20 (2) 6390470
& Cell biology (Ls. Plattner), Biology Dept.,
Konstanz Uni., Germany.
ihabkmohamed@yahoo.com
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www.ub.uni-konstanz.de/kops/volltexte/2002/760

Specialty Keywords: Ca²⁺, Exocytosis, Secretion, Fluorochrome analysis, Paramecium.

Current Research: Cellular calcium signaling during secretion. This is proceeded under CLSM or 2λ inverted microscope by painstaking Ca²⁺-sensing fluorochrome microinjection into individual living cells and stimulation of these cells. Then transform the detected fluorescence change into a calcium quantitative values vs. time (time-resolved fluorescence imaging) by sophisticated computerized process. I am also, interested in new biological fluorescence sensing methodology e.g. fluorochrome microinjection, GFP application, imaging single molecules, signal transduction and looking for a post-doctor position in that field.

B.Sc, M.Sc. Ain-Shams, London, Wales Universities, Ph.D. (2002) Konstanz Uni. Germany.

* I. Mohamed et al. (2002), *J. Membrane Biol.* 187, 1-14.

Date submitted: 5th August 2002

Gerhard J. Mohr, Ph.D.



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Friedrich-Schiller University,
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Specialty Keywords: Luminescent sensors, Optodes, Reactands, Labels.

Current research is dedicated to the development of new functional dyes and the investigation of their sensing properties in thin polymer layers. Then, they are adapted to miniaturized optics components for the detection of gaseous and dissolved analytes relevant in environmental, medical and biotechnical areas. Furthermore, we develop novel long-wavelength absorbing and fluorescing dyes that can be used for labeling of biomolecules.

G. J. Mohr et al. (1999). Reversible chemical reactions as the basis of optical sensors used to detect amines, alcohols and humidity, *J. Mat. Chem.* **9**, 2259-2265.

P. Czerney, F. Lehmann, M. Wenzel, V. Buschmann, A. Dietrich, G. J. Mohr. (2001). Tailor-made dyes for Fluorescence Correlation Spectroscopy, *Biol. Chem.* **382**, 495-498.

Date submitted: 5th September 2002

María C. Moreno-Bondi, Ph.D.



Dept. Analytical Chemistry, Facultad de Química,
Complutense University,
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Specialty Keywords: Opt(r)odes, Luminescent sensors, Analysis, Validation.

Our current areas of research are (i) the design, fabrication and analytical characterization of *fiber optic* chemosensors *and* biosensors based on novel dyes for the analysis of environmental, industrial, food and medical parameters; (ii) the synthesis and application of Molecularly Imprinted Polymers (MIPs) for sensor development and separation purposes; (iii) sensor application and validation.

M.P. Xavier, B. Vallejo, M.D. Marazuela, M.C. Moreno-Bondi, F. Baldini, A. Falai, *Biosens. and Bioelect.* **2000**, *14*, 895.

M. Bedoya, G. Orellana, M.C. Moreno-Bondi, *Helv. Chim. Acta* **2001**, *84*, 2628.

Date submitted: 15th August 2003

Larry E. Morrison, Ph.D.



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Illinois, 60515,
USA.

Tel: 630 271 7136 Fax: 630 271 7128
lmorrison@vysis.com

Specialty Keywords: Fluorescence, In situ hybridization, Energy transfer assays, DNA labeling chemistry, Cancer diagnostics.

Current Research Interests: Developing diagnostic, prognostic, and predictive assays for human cancers employing both fluorescence *in situ* hybridization and PCR-based assays. This has included developing multi-target *in situ* hybridization technology using many fluorescent labels simultaneously, combinatorially, or ratiometrically. An early and continuing interest is homogeneous fluorescence detection systems, especially as applied to detecting PCR products.

Morrison (2003) Fluorescence in nucleic acid hybridization assays. *In* Topics in Fluorescence Spectroscopy, Vol 7. Lakowicz, J. ed. Kluwer, New York pp 69-97.

Morrison *et al.* (2002) Labeling fluorescence *in situ* hybridization probes for genomic targets, *In* Molec. Cytogenetics: Protocols and Appl. Fan, YS ed. Humana, Totowa, NJ. pp 21-40.

Date submitted: 28th August 2002

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Pharmaceutical Research, Discovery Technologies,
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Switzerland.

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Specialty Keywords: Proteins, Binding affinities, Time-resolved Fluorescence labels.

Biomolecular structure research: Protein dynamics, stopped-flow measurements, mobility of tryptophanes for structural studies. Support of fluorescent biological assays development. Intracellular calcium.

Characterisation of lead structures for protein binding. Hits validation from high throughput screening and biological assays. Support in fine tuning of potential ligands with quantitative measurement of affinities by fluorescence titration.

Müller-Newen, G.
Murakami, K.

Date submitted: 13th September 2002

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Specialty Keywords: Fluorescent fusion proteins, Living cells,
Confocal laser-scanning microscopy.

Current research: Cytokine signal transduction in live cells using confocal microscopy. To achieve this, cytokines, cytokine receptors, Janus kinases and transcription factors of the STAT-family are expressed as fusion proteins linked to GFP, YFP or CFP. The proteins are studied by FLIP (fluorescence loss in photobleaching), FRAP (fluorescence recovery after photobleaching) and FRET to learn more about their subcellular distribution, their dynamics and interactions within the living cell. Since we entered the field of fluorescent proteins just two years ago, the following references refer to former work the group.

Müller-Newen, G., A. Küster, J. Wijdenes, F. Schaper, P. C. Heinrich. 2000. Studies on the IL-6-type cytokine signal transducer gp130 reveal a novel mechanism of receptor activation by monoclonal antibodies. *J. Biol. Chem.* 275: 4579-4586.

Date submitted: 30th August 2002

Kiyofumi Murakami, Ph.D.



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Japan.
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Specialty Keywords: Biomacromolecule-Small Molecule
Interaction, Kinetics and Mechanism.

Current Research Interests: I am interested in specific and cooperative bindings of amphiphilic substances such as dyes and surfactants to biomacromolecules and their local structure models from thermodynamic and kinetic view points. I am also interested in exploring new materials for science education.

K. Murakami (2002). Thermodynamic and kinetic aspects of self-association of dyes in aqueous solution. *Dyes and Pigments*, **53**(1), 31-43. K. Murakami (1999). Cooperative ligand binding to globular protein: A statistical mechanical theory based on a simple geometrical model and its application to lysozyme systems. *Langmuir*, **15**(12), 4270-4275.

Date submitted: 12th September 2002

Miloš Nepraš, Ph.D.



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Specialty Keywords: Fluorescent probes, Bifluorophoric systems, Structure and fluorescence characteristics.

Syntheses and study of relationships between electronic structure and luminescence properties of polynuclear aromatic ketones and quinones and their derivatives. Syntheses and fluorescence characteristics (spectra, quantum yield, fluorescence decay kinetics and solvent effect) of new fluorescent probes derived from acyl and triazinyl derivatives of pyrene, aminopyrenes and aminobenzanthrones. Study of the excitation energy transfer at bifluorophoric systems created from the 3-aminobenzanthrone and aromatic hydrocarbon subsystems.

V. Fidler, P. Kapusta, M. Nepraš, J. Schroeder, I. V. Rubtsov and K. Yoshihara Femtosecond Fluorescence Anisotropy Kinetics as a Signature of Ultrafast Electronic Energy Transfer in Bichromophoric Molecules Z. Phys. Chem. 216 (2002) 589 – 603.

Date submitted: 12th July 2002

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CA, 92037,
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Tel: 858 523 5059 Fax: 858 523 5070
wniles@genoptix.com

Specialty Keywords: Radiometric imaging, Energy transfer, Membrane dynamics.

Developed quantitative fluorescence resonance energy transfer imaging of membrane dynamics in model and biological systems for understanding essential biophysical mechanisms. Now applying novel fluorescence and optical micromechanics for development of assay technologies (biologies and instrumentation) for drug discovery and diagnostics.

Endothelial cell-surface gp60 activates vesicle formation and trafficking via Gi-coupled Src kinase signaling pathway. 2000. Journal of Cell Biology 150:1057-1069.

Radiometric calibration of a video fluorescence microscope for the quantitative imaging of resonance energy transfer. 1995. Review of Scientific Instruments. 66:3527-3536.

Norey, C. G.
Novo, M.

Date submitted: 10th July 2003

Christopher G. Norey, Ph.D.



Amersham Biosciences, The Maynard Centre,
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Wales, UK.

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christopher.norey@amersham.com
www.amershambiosciences.com

Specialty Keywords: Polarization, HTS Instrumentation, Assays.

Our interests are development of systems relevant for high throughput screening assays, employing fluorescence polarization, FRET and time resolved-FRET techniques. Primarily using CyDye™ fluors and Eu (TMT) chelates with detection via single well PMT readers or whole plate imaging platforms, such as LEADseeker™ multi-modality imaging system. We have a particular interest in receptor ligand interactions, protease cleavage and kinase assays. Recently we have been investigating the application of fluorescence lifetime to these areas.

A. Fowler, I. Davies and C. Norey, (2000), A Multi-Modality Assay Platform for Ultra-High Throughput Screening. *Current Pharmaceutical Biotechnology*, 1, 265-281.

A. Harris, S. Cox and C. Norey, (2002), High-throughput fluorescence polarization receptor binding assays. In: *LifeScience News*, Amersham Biosciences UK Limited, issue 10, 17-19.

Date submitted: 12th September 2002

Mercedes Novo, Ph.D.



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Facultad de Ciencias, Departamento de Química Física,
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Specialty Keywords: Fluorescence, Data analysis.

Current interests: Study of the influence of confined media such as cyclodextrins on proton transfer and charge transfer processes. Design of fluorescent probes for the characterisation of supramolecular structures formed by cyclodextrins. Development and implementation of new data analysis methods for steady state and time resolved fluorescence data.

W. Al-Soufi, M. Novo y M. Mosquera (2001). Principal Component Global Analysis of fluorescence and absorption spectra of 2-(2'-hydroxyphenyl)benzimidazole. *Appl. Spectrosc.*, **55**, 630-636. E. Alvarez-Parrilla, W. Al-Soufi, P. Ramos Cabrer, M. Novo y J. Vázquez Tato (2001). Resolution of the association equilibria of 2-(p-toluidinyl)-naphthalene-6-sulfonate (TNS) with cyclodextrin and a charged derivative. *J. Phys. Chem. B*, **105**, 5994-6003.

Date submitted: 26th August 2002

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www.ucm.es

Specialty Keywords: Indicator design, Fiber-optic sensors,
Environmental analysis and Process control.

Our current areas of research are (i) design and fabrication of micro-probes based on molecularly engineered luminescent dyes, novel photochemical reactions and *fiber-optic chemosensors* for in situ analysis of environmental, industrial, and medical parameters, and (ii) synthesis and characterization of nano-probes to investigate the structure of nucleic acids and design artificial photonucleases. The realization of both goals rests on *tailored* luminescent transition metal complexes and organic heterocyclic structures.

F. Navarro-Villoslada, G. Orellana, M.C. Moreno-Bondi, T. Vick, M. Driver, G. Hildebrand and K. Liefelth, *Anal. Chem.* **2001**, 73, 5150-5156.

M.E. Jiménez, G. Orellana, F. Montero and M.T. Portolés, *Photochem. Photobiol.* **2000**, 72, 28-34.

Date submitted: 28th August 2003

Uwe Ortmann, M.Sc.



PicoQuant GmbH.,
Rudower Chaussee 29,
Berlin 12489,
Germany.

Fax: +49 (0)30 6392 6567
ortmann@pq.fta-berlin.de
www.picoquant.com

Specialty Keywords: Pulsed Lasers, Time-resolved
Spectroscopy, Single Molecule Detection.

Current Status: Head of Systems and Sales / Marketing divisions of PicoQuant GmbH.

Major activities are based on the design and further development of fluorescence lifetime systems, especially in the field of time-resolved photon counting equipment and single molecule detection.

Application of sub-ns pulsed LEDs in fluorescence lifetime spectroscopy, Proceedings of SPIE, Vol.4648, p.171-178 (2002).

Otz, M. H.
Pak, R. H.

Date submitted: 9th September 2002

Martin H. Otz, Ph.D.



Syracuse University, Dept. of Earth Sciences,
313 Heroy Geology Laboratory, Syracuse,
Onondaga, 13244-1070,
USA.

Tel: 315 572 0254
otzhydro@hotmail.com
web.syr.edu/~mhotz/index.html

Specialty Keywords: Dye tracing, Hydrogeology, Fluorescent dyes.

A major problem in hydrology is to determine the flow paths of water in organic-rich environments. My research focuses on the development of dye tracing techniques for tracing and quantifying mixtures of organic-rich waters using organic fluorescent dyes.

Otz, M.H., Otz, H.K., and Keller, P., 2002, Detection limits for spectro-fluorometry: a case study in the region of Finstersee (ZG), northern Switzerland [abs.]: EOS (Transactions American Geophysical Union), v.83. p. S-183.

Otz, M.H., Hanselmann, K., Otz, H.K., Tonolla, M., and Siegel, D.I., 2000, Is the biocline of meromictic Lake Cadagno (Swiss Alps) affected by complex lake current patterns? [abs.]: Eos (Transactions American Geophysical Union), v. 81, F-473.

Date submitted: 9th August 2002

Roger H. Pak, Ph.D.



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Bristol-Myers Squibb Pharmaceutical Research Institute,
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CT 06492, USA.

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roger.pak@bms.com

Specialty Keywords: Bioconjugate / Biophysical Chemistry,
Biomolecular Assay Design and High-Throughput Screening.

My research focuses on developing labeled peptides and bioconjugates for use in biomolecular assays and high-throughput screening for drug discovery. These bioconjugates are used in a variety of assay formats such as time-resolved fluorescence resonance energy transfer, fluorescence polarization, fluorescence intensity and other radioisotopic or luminescent techniques such as scintillation proximity assays, bioluminescence and enzyme-coupled reactions. I am also involved in the development of novel fluorophores as biological and chemical sensors.

Date submitted: 14th August 2002

Paul Pantano, Ph.D.



Department of Chemistry,
The University of Texas at Dallas,
Richardson, TX 75083-0688,
USA.

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pantano@utdallas.edu

www.utdallas.edu/dept/chemistry/faculty/pantano.html

Specialty Keywords: Microarrays, Sensors, Cell adhesion.

PantanoLABO is motivated to develop elegant analytical techniques and methodologies to understand complex (bio)chemical systems. Our research includes the fabrication and characterization of microwell, micropost, nanotip, and planar imaging fiber chemical and electrochemical sensors. Specific biological interests include cell adhesion and guidance, reactive oxygen species and oxidative stress, and neurochemical dynamics. New projects include immunosensor arrays, cell-based biosensors, and other high-throughput screening assays. C. C. Meek and P. Pantano, (2001). Spatial Confinement of Avidin Domains in Microwell Arrays, *Lab on a Chip*, **1** (2), 158-163.

E. S. Jin, B. J. Norris, and P. Pantano, (2001). An Electrogenenerated Chemiluminescence Imaging Fiber Electrode Chemical Sensor for NADH, *Electroanalysis*, **13** (15), 1287-1290.

Date submitted: 3rd September 2002

George C. Papageorgiou, Ph.D.

National Center for Scientific Research Demokritos,
Institute of Biology,
Athens,
Greece, 153 10.

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gcpap@bio.demokritos.gr & gcpap@ath.forthnet.gr

Specialty Keywords: Photosynthesis, Chlorophyll, Cyanobacteria.

Recently, we have explored applications of phycobilisome-sensitized chlorophyll *a* fluorescence as a quantitative reporter of osmotic volume changes of cyanobacteria, and of osmotically-driven transport of solutes and water across cyanobacterial cell envelopes.

Stamatakis K and Papageorgiou GC (2001) The osmolality of cell suspension regulates phycobilisome-to-photosystem I excitation transfer in cyanobacteria. *Bioch. Biophys. Acta* 1506: 172-181.

Stamatakis K, Ladas Np, Alygizaki-Zorba A and Papageorgiou GC (1999) Sodium chloride-induced volume changes of freshwater cyanobacterium *Synechococcus* sp PCC7942 cells can be probed by chlorophyll *a* fluorescence. *Arch. Biochem. Biophys.* 370: 240-249.

Papkovsky, D. B.
Papper, V.

Date submitted: 29th August 2003



Dmitri B. Papkovsky, Ph.D.

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Lee Maltings, Cork,
Ireland.

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www.ucc.ie/ucc/depts/biochemistry/staff/dpapkov.html

Specialty Keywords: Phosphorescence, Porphyrins, Probes.

Research areas: Microsecond time-resolved and phase-resolved fluorescence; room-temperature phosphorescence; development and application of phosphorescent porphyrin probes; quenched-luminescence oxygen sensing and respirometric assays; enzymatic, binding, hybridisation and cell-based assays; high throughput screening, homogeneous bioassays.

Ref 1: J. Hynes, S. Floyd, A.E. Soini, R. O'Connor, D.B. Papkovsky (2003). Fluorescence based cell viability screening assays using water-soluble oxygen probes, *J. Biomol. Screening*, **8**(3), 264-272.

Ref 2: P. J. O' Sullivan, M. Burke, A.E. Soini, D.B. Papkovsky (2002). Synthesis and evaluation of phosphorescent oligonucleotide probes for hybridization assays, *Nucl. Acids Res.*, **30**(21), E114-4.

Date submitted: 9th September 2002



Vladislav Papper, Ph.D.

Institute of Chemistry, Humboldt University of Berlin,
Brook-Taylor Strasse 2,
Berlin, 12479,
Germany.

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www.chemie.hu-berlin.de/wr/index.html

Specialty Keywords: Stilbene, Photoisomerisation, Dual Fluorescence.

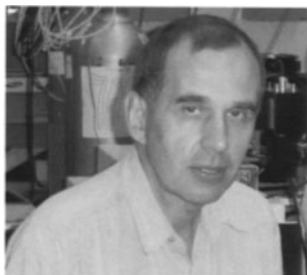
Synthesis, photochemistry and photophysics of stilbenoid compounds, mainly *trans-cis* photoisomerisation. Synthesis and photophysics of fluorescent and dual-fluorescent probes, derivatives of stilbene, with applications to biological membranes, proteins of biological interest, polarity probes for quartz surfaces with the following application to the optoelectronic devices. Synthesis, photophysics and photochemistry of dual-fluorescent probes, *p*-(*N,N*-dimethylamino)benzonitrile derivatives, for visual and proton-pumping opsin proteins.

V. Papper, G. I. Likhtenshtein, "Substituted Stilbenes: A New View on Well-Known Systems", *J. Photochem. Photobiol. A: Chem.* **140**, (2001), 39-52.

V. Papper, V. Kharlanov, W. Rettig, "New fluorescent probes for visual proteins", *Phys. Chem. Chem. Phys.* **4**, (2002), 1752 – 1759.

Date submitted: 18th August 2002

Alexandr S. Parfenov, Ph.D.



Department of Biochemistry and Molecular Biology,
Center for Fluorescence Spectroscopy University of Maryland,
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Specialty Keywords: Non-invasive diagnostics, Glucose,
Cholesterol.

Method of determining skin tissue cholesterol US Patent 6,365,363 Apr.2, 2002.

Fluorescence method for monitoring of glucose in interstitial fluids. SPIE 2001, 4263.
To continue working as a scientist in the field of the non-invasive diagnostics on the
development of new diagnostic tests.

Date submitted: 28th August 2002

Pavel Parkhomyuk–Ben Arye, M.Sc.



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Department of Chemistry,
Beer-Sheva, 84152,
Israel.
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parhomyu@bgumail.bgu.ac.il
www.bgu.ac.il/chem/index.html

Specialty Keywords: Fluorescence-Based Sensors, FRET,
Biophysical Chemistry.

Current Research Interests: (a) Application of FRET for quantitative analysis at nanomolar scale, (b) investigation of the surface phenomena with covalently immobilized fluorescent probes, (c) study of the double spin-fluorescent molecules and their application as redox and viscosity probes and (d) photophysical and photochemical investigation of HSA-Hemin complex.

P. Parkhomyuk-Ben Arye, N. Strashnikova, G.I. Likhtenshtein (2002). Stilbene photochrome-fluorescence-spin molecules: covalent immobilization on silica plate and applications as redox and viscosity probes, *J. Biochem. Biophys. Methods*, **51**, 1-15.

Parola, A. H.
Pearson, W. H.

Date submitted: 4th September 2002

Abraham H. Parola, Ph.D.

Chemistry, Ben-Gurion University,
P.O. Box 653, Beer Sheva,
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aparola@bgumail.bgu.ac.il

Specialty Keywords: Lipid-Protein & Protein-Protein & Protein-Ligand / drug Interactions, Membrane Dynamics, Time / phase resolved fluorescence spectroscopy.

Research topics: The role of hydrophobic interactions in membranal and non-membranal protein function and regulation, signal transduction, cell cycle and proliferation, cell differentiation and intercellular interactions, angiogenesis, apoptosis, magnetic field effects on biological systems.

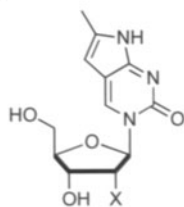
On the Regulatory Role of Dipeptidyl Peptidase IV (= CD26 = Adenosine Deaminase Complexing Protein) on Adenosine Deaminase activity. I. Ben-Shooshan, A. Kessel, N. Ben-Tal, R. Cohen-Luria and A.H. Parola *Biochim. Biophys. Acta*, 1587, 21-30 (2002).

Nature of interaction between basic fibroblast growth factor and the antiangiogenic drug 7,7-(carbonyl-bis[imino-N-methyl-4,2-pyrrolocarbonylimino[N-methyl-4,2-pyrrole]-carbonylimino])-bis-(1,3-naphtalene disulfonate).

Removal of polar interactions affects protein folding. M. Zamai, C. Hariharan, D. Pines, M. Safran, A. Yayon, V.R. Caiolfa, R. Cohen-Luria, E. Pines and A.H. Parola *Biophys. J.*, in press.

Date submitted: 21st October 2003

William H. Pearson, Ph.D.



Pyrrolo-dC (X=H)
Pyrrolo-C (X=OH)

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Dexter, Michigan, 48130,
USA.

Tel: 734 426 3787 Fax: 734 426 9077

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www.berryassoc.com

Specialty Keywords: Fluorophores, Dark quenchers, Fluorescent nucleosides.

We are a leading source of nucleosides and modified nucleosides as well as fluorophores and quenchers. We offer fluorescence quenchers, carboxyfluoresceins, and carboxytetramethylrhodamines (isomerically pure) in forms suitable for labeling biomolecules, i.e. as active esters, CPG-supported materials, and nucleoside-linked materials. In conjunction with Glen Research, we have also developed fluorescent cytidine and 2'-deoxycytidine analogs (see pyrrolo-C and -dC above) and their phosphoramidites, which have proven to be useful probes of nucleic acid structure. Our current efforts include the development of new fluorophores and dark quenchers. Please contact us for excellent prices on fluorophores. We would also be interested in discussing your custom fluorescence needs.

Date submitted: 6th September 2002

Jana Peknicova, Ph.D.



Dept. of Biology and Biochemistry of Fertilization,
Institute of Molecular Genetics Academy of Sciences of the
Czech Republic, Videnska 1083, Prague 4,
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Specialty Keywords: Biology of Reproduction, Fertilization,
Sperm proteins.

The long-term interest of the group lies in studies of the molecular mechanism of mammalian fertilization. The role of selected sperm proteins during capacitation, acrosome reaction and sperm binding to zona pellucida of oocytes is studied. The changes in immunochemical localization of cytoskeletal proteins in boar sperm during capacitation and acrosome reaction were tested. The effect of endocrine disruptors on mammalian fertility was also tested and sperm quality was evaluated with monoclonal antibodies by immunofluorescence method.

Peknicova J., Kubatova A., Sulimenko V., Draberova E., Viklicky V., Hozak P., Draber P.: *Biology of Reproduction* 65:672-679, 2001 .

Peknicova J., Kyselova V., Buckiova D., Boubelik M.: *American Journal of Reproductive Immunology* 47: 311-318, 2002.

Date Submitted: 24th May 2002

Fabrizio Pelella, (Ph.D. Student)



Institute of Protein Biochemistry,
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pelella@dafne.ibpe.na.cnr.it

Specialty Keywords: Biosensors, Thermophilic Proteins and
Enzymes, Fluorescence.

My scientific interests deal with the development of innovative protein biosensors based on the utilization of proteins and enzymes isolated from mesophilic and thermophilic organisms. My primary goal is to contribute to the realization of new fluorescence methods of sensing by means of fluorescence techniques. In particular my thesis is focused on the development of stable and non-consuming substrate biosensors for analytes of high environmental, clinical and social interests.

Peltie, P.
Pender, M. J.

Date submitted: 8th September 2002

Philippe Peltie, Ph.D.



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TECHNOLOGIQUE

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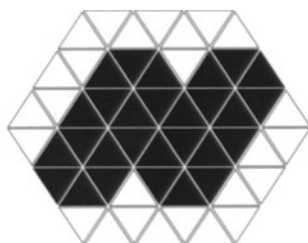
Specialty Keywords: Fluorescence instrumentation, Quantitative fluorescence microscopy, DNA.

My job, at present time, is concerned about fluorescence instrumentation, in two domains: Quantitative fluorescence microscopy for silicon DNA biochips (as MICAMTM chip) reader And fluorescence polarization in microchannel's labs on chip for genotyping. In the future, two ways are explored: Fluorescence microscopy for cells on chip and in vivo Fluorescence of human tissues through endoscopic way.

Fluorescence detection for DNA chips and labs on chips and perspective for integrated systems. IXth international symposium on luminescence spectrometry in biomedical and environmental Analysis; may, 15-17, 2002; Montpellier, France.

Date submitted: 30th May 2002

Michael J. Pender, M.S.



Nanochron LLC.,
4201 Wilson Blvd. #110-615,
Arlington, Virginia 22203, USA.

Michael.Pender@Nanochron.com
www.nanochron.com

Specialty Keywords: Photonics, Predictive modeling.

My work focuses on the development of application-specific optical devices. Specific topics include intra-molecular photonic transfer in fluorescent and quasi-fluorescent optical channels and predictive modeling of the properties of fluorophores in photonic devices for optical communications and signal processing.

M. Pender (2001). Optical matrix photonic logic device and method for producing the same, Patent Cooperation Treaty Application No. PCT/IB01/00888.

Date submitted: 30th August 2002

Xinzhan Peng, Ph.D.



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Division of Chem. R&D,
4308 Progressive Ave, Lincoln,
Nebraska, 68504, USA.
Tel: 402 467 0796 Fax: 402 467 0819
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www.licor.com

Specialty Keywords: Fluorescent probe, Near-infrared dye,
Protein assay.

My current research focuses on the design and synthesis of new fluorescent dyes for biomolecules conjugation. Particular interest is the design and development of novel near-infrared fluorescent probes with high sensitivity for protein assay applications.

Date submitted: 20th March 2003

Alfons Penzkofer, Ph.D.

Naturwissenschaftliche Fakultät II – Physik,
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Specialty Keywords: Absorption Spectroscopy, Fluorescence Spectroscopy, Femtosecond Spectroscopy.

We determine refractive index spectra, absorption cross-section spectra, make fluorescence spectroscopic characterisations, fluorescence excitation spectroscopic characterisations, and photo-degradation studies mainly on organic molecules, luminescent polymers, and sensory biological photo-receptors (flavin chromophors, bacteriochlorophylls). We perform laser studies on thin-film luminescent polymers and solid-state dye lasers.

W. Holzer, A. Penzkofer, M. Fuhrmann, P. Hegemann, Spectroscopic Characterization of Flavin Mononucleotide Bound to LOV1 Domain of Phot1 from *Chlamydomonas reinhardtii*, Photochem. Photobiol. **75** (2002) 479-487.

A. Penzkofer, O. Lammel, T. Tsuboi, Emission Spectroscopic Characterisation of F_2^- Colour Centres in a LiF Crystal, Opt. Commun. **214** (2002) 305-313.

Perry, F. S.
Petersen, N. O.

Date submitted: 22nd August 2002



Frederick S. Perry.

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91 Boylston Street, Brookline,
MA, 02445,
USA.

Tel: (800) 347 5445 or (617) 566 3821 Fax: (617) 731 0935
fsp@boselec.com
www.boselec.com

Specialty Keywords: TCSPC, Photodetection, Spectroscopy.

President and founder of Boston Electronics Corporation, North American agents for Becker & Hickl GmbH of Berlin, Germany and for Edinburgh Instruments Ltd of Edinburgh, Scotland. Specialists in photodetection and signal processing electronics for photodetection.

Date submitted: 23rd April 2003



Nils O. Petersen, Ph.D.

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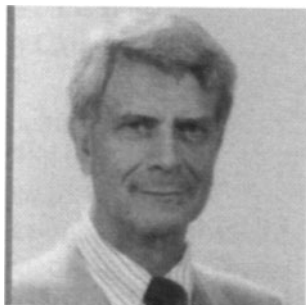
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www.uwo.ca/chem

Specialty Keywords: Microscopy, Confocal, Correlation spectroscopy.

Image Correlation Spectroscopy: measurements of density of molecular clusters or single molecules, the degree of aggregation and the extent of association of different molecules into co-localized domains. Fluorescence photobleaching or fluorescence correlation spectroscopy. Fluorescence measurements in small volumes. Multiphoton excitation in confocal microscopy applications. Protein-protein interactions in domains in membranes of cells. Atomic force microscopy and time-of-flight secondary ion mass spectrometry of membranes and monolayers. N.O. Petersen AFCS and Spatial Correlations on Biological Surfaces@ Ch. 8 in AFluorescence Correlation Spectroscopy@ Edited by R. Rigler and E.L. Elson, Springer Verlag (2000). C.L. Lee and N.O. Petersen "The Lateral Diffusion of Selectively Aggregated Peptides in Giant Unilamellar Vesicles" Biophysical J. 84, 1756-64 (2003).

Date Submitted: 13th May 2002

Basilio Pispisa, Ph.D.



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www.stc.uniroma2.it/files/Pispisa%20files/B.Pispisa

Speciality keywords: Biophysical chemistry, Spectroscopy,
Conformational analysis.

Three major research topics are pursued in the Professor Pispisa's laboratory:

- Structure and molecular dynamics of oligopeptides and polypeptides in solution, mimicking proteins and bioactive compounds;
- Structure-reactivity relationships in model compounds of enzymic materials;
- Structural features of glycopeptides and functionalized peptides in solution and in membranes.

B. Pispisa et al. (2000) *Biopolymers*, **54**, 127-136. 2002 Peptide-Sandwiched Protoporphyrin Compounds Mimicking Hemoprotein Structures in Solution.

B. Pispisa et al. (2002) *J. Phys. Chem. B* 106, 5733-5738. Effects of Helical Distortions on the optical Properties of Amide NH Infrared Absorption in Short Peptides in Solution.

Date submitted: 11th September 2002

Emmanuelle Plantin-Carrenard, Ph.D.



Laboratoire de Biochimie Générale et de Glycobiologie,
UFR des Sciences Pharmaceutiques et Biologiques,
Uni. René Descartes - Paris 5, 4 avenue de L'Observatoire,
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eplantin@wanadoo.fr

Specialty Keywords: Fluorescence probes, Oxidative stress,
Apoptose.

Oxidative stress is defined as the pathological outcome of overproduction of oxidative species that overwhelms the cellular antioxidant capacity. The consequence of induced-oxidative stress are studied *in vitro* on adherent and non-adherent cell models. Fluorescent probes are interesting tools to measure with high sensitivity and specificity the modifications of cellular functions under oxidant conditions : reactive oxygen species production, modulation of intracellular thiol levels, necrosis/apoptosis balance, cellular adhesion, evaluation of the protective effects of some antioxidant compounds.

Plantin-Carrenard E. et al. *Journal of Fluorescence*, 2000; 10 : 167-73.

Plantin-Carrenard E. et al. *Cell Biol Toxicol*, 2003; 19 : 121-33.

Plášek, J.
Prieto, M.

Date submitted: 12th September 2002

Jaromír Plášek, Ph.D.



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Specialty Keywords: Membrane potential, Polarized fluorescence, Microfluorimetry.

Research Interests: Lipid order in cell membranes from polarized fluorescence of membrane probes. Fluorescent probing of cell membrane and mitochondrial membrane potential in living cells. ATP binding to a N-domain in the cytoplasmic loop of Na,K-ATPase from binding assays with TNP-ATP.

J. Plášek and K. Sigler (1996) Slow fluorescent indicators of membrane potential: a survey of different approaches to probe response analysis. *J. Photochem. Photobiol. B: Biology* **33**, 101-124.
D. Gášková, R. Čadek, R. Chaloupka, J. Plášek and K. Sigler (2001) Factors underlying membrane potential-dependent and -independent fluorescence responses of potentiometric dyes in stressed cells: diS-C₃(3) in yeast. *Biochim. Biophys. Acta* **1511**, 74-79.

Date submitted: 25th August 2003

Manuel Prieto, Ph.D.



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Portugal.
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prieto@alfa.ist.utl.pt

Specialty Keywords: FRET, Lipid domains, Lipid protein-interaction, lipid-DNA complexes.

Current Research Interests: Application of steady-state and time-resolved photophysical methodologies to the detection, characterization and dynamics of membrane heterogeneities (domains/rafts). Topology and dynamics of protein/peptide and polyene antibiotics interaction with model systems of membranes. Cholesterol organization in membranes, Lipid-DNA complexes.

Interaction of peptides with binary phospholipid membranes: Application of fluorescence methodologies. (review), *Chem. Phys. Lipids*, **122** (1-2), 77 – 96 (2003).

Boundaries and composition of raft structures. *Biophys. J.* **85** (4), 000 (2003).

Date submitted: 3rd September 2002

Karel Procházka, Ph.D., D.Sc.



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prochaz@vivien.natur.cuni.cz
www.natur.cuni.cz/pmc

Specialty Keywords: Fluorescence from polymers, Polymer conformations and Segmental dynamics, Association of polymers.

Studies of polymer conformations and chain dynamics by a combination of fluorescence techniques (time-resolved and steady-state, recently also FCS) with static and quasielastic light scattering and other techniques used in polymer science (such as SEC, ultracentrifugation, electromigration, SEM and AFM microscopy). In recent decade, a special attention has been paid to the association of amphiphilic water-soluble block copolymers (mainly block polyelectrolytes) in polar and aqueous media.

C. Tsitsilianis, D. Voulgaris, M. Štěpánek, K. Podhájecká, K. Procházka, Z. Tuzar, W. Brown (2000) Polystyrene/Poly(2-vinylpyridine) Heteroarm Star Copolymer Micelles in Aqueous Media and Onion Type Micelles Stabilized by Diblock Copolymers *Langmuir* 16, 6868-6876.

Date submitted: 22nd July 2003

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Campus de Gualtar, Braga,
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Portugal.

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Specialty Keywords: Biophysics, Microheterogeneous systems, Cationic vesicles and DNA.

In the last years my research has been focused to investigate the structural and functional characterization of some nonionic microemulsions and studying nonionic surfactants/lipid interactions using steady state and time resolved fluorescence spectroscopy and fluorescence anisotropy using the fluorescence probes, pyrene, nile red, prodan, and di-asp, DCM laser dye, etc. At the moment I am interested to characterize some cationic/neutral vesicles by fluorescence anisotropy and light scattering.

"Monitoring ternary systems of C₁₂E₅/water/tetradecane via fluorescence of solvatochromic probes", G. Hungerford, E.M.S. Castanheira, M.E.C.D. Real Oliveira, M. da G. Miguel and H.D.Burrows, *J. Phys. Chem. B*, 2002, 106, 4061.

Date submitted: 17th June 2002

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chem.ch.huji.ac.il/employee/reisfel/REISFELD.HTM

Specialty Keywords: Fluorescent dyes, Sol-gel tunable lasers, LSC, Sensors, QD.

The group of Prof. Reisfeld is studying the following topics connected with fluorescence. Fluorescence of Rare Earth ions in glasses, theoretically and experimentally, Steady State and dynamic processes of Fluorescence of dyes in glasses. Excited State Process and applications in luminescent solar concentrators (LSC), tunable lasers, planar active wave guides and sensors. Quantum dots (QD) of semiconductors and metals in glass bulks and films. Using absorption and fluorescence, quantum size effects are determined. Applications for nonlinear optics. R. Reisfeld, "Lasers Based in Sol-Gel Technology", Optical and Electronic Phenomena in Sol-Gel Glasses and Modern Applications, Eds. R. Reisfeld, C.K. Jorgensen, *Structure and Bonding* **85**, Springer- Verlag (1996) 215-233.

Date submitted: 11th July 2002

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Specialty Keywords: Fluorescent standards, Fluorescent probes and sensors, Time resolved fluorometry, Quality assurance.

Current Research Interests: Design and spectroscopic study of functional dyes and fluorescent sensor molecules. Quality assurance and standardization including development of fluorescent standards for steady state and time resolved fluorometry.

K. Rurack, U. Resch-Genger (2002). Rigidization, preorientation and electronic decoupling – the magic triangle for the design of highly efficient sensors and switches, *Chem. Soc. Rev.* **31**, 116-127.

Date submitted: 9th September 2002

Wolfgang Rettig, Ph.D.



Institut für Chemie der Humboldt-Universität zu Berlin,
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www.chemie.hu-berlin.de/wr/index.html

Specialty Keywords: Time-resolved fluorescence, Adiabatic photoreactions, TICT.

Mechanisms of photochemical primary processes (electron and proton transfer; trans-cis and valence isomerizations; visual process); ultrafast fluorescence and absorption spectroscopy; solvation of excited states; quantum-chemical modelling of photoreactions; fluorescence probes for biology, medicine and analytical chemistry; fluorescence polymer probing. Many studies enriching the field of compounds with anomalous fluorescence properties linked with intramolecular twisting (TICT).

Applied Fluorescence in Chemistry, Biology, and Medicine, Editors: W. Rettig, B. Strehmel, S. Schrader, H. Seifert, Springer-Verlag Berlin, Heidelberg, 1998.

Date submitted: 30th August 2003

David E. Roll, Ph.D.



Dept. of Chemistry, Roberts Wesleyan College,
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www.Roberts.edu

Specialty Keywords: Chlamydia infection, Topoisomerase, Gold nanoparticles.

Type I topoisomerase is an enzyme that plays a role in the regulation of DNA supercoiling in the cell. Research is directed at understanding the role of this enzyme in the initiation of Chlamydia infection in an eukaryotic cell and the role that phosphorylation may play in regulating this enzyme's activity. Gold nanoparticles and metal enhanced fluorescence may provide valuable tools for the detection of Chlamydia infections.

Roll, D., Malicka, J., Gryczynski, I., Gryczynski, Z. and Lakowicz, J. (2003). Metallic Colloid Wavelength-Ratiometric Scattering Sensors. *Analytical Chemistry* 75(14):3440-3445.

Romodanova, E. A.
Roshal, A. D.

Date submitted: 29th August 2003

Ella A. Romodanova, Ph.D.



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www-biomedphys.univer.kharkov.ua/

Specialty Keywords: Fluorescence spectroscopy, Fluorescent probes, Proteins, Cell suspensions.

Main research interests: My research interests include fluorescence analysis application to investigation of physical factors (low temperatures, laser and ionizing radiation etc.) action on the biopolymers solutions and cell suspensions. Author and co-author of more then 100 scientific and methodical works.

Romodanova E.A., Gavrik V.V., Roshal A.D. et al. Changes in HSA Conformation under the Action of Freezing and Laser Radiation as Judged by Fluorescence of Nafthalic Acid Derivative, *Problems of Cryobiology* (2002), **3**, 28-32.

Romodanova E.A., Dyubko T.S. et al. MNBIS as marker of protein macrostructure changes, *Biophysical Bulletin (Visn. Khar. Univ.)*, (2002), Ser. Radiophysics and Electronics, Issue 2 (570), 302-307.

Date submitted: 6th September 2002

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Specialty Keywords: Flavonoids, Flavonoid complexes, Absorption and Fluorescence spectroscopy.

Research interests: • Structure and physico-chemical properties of flavones, isoflavones and its derivatives. • Proton transfer in flavonols under excitation. • Complexation of flavonoids in the ground and excited states. • Spectral properties of flavonol complexes. • Structure, spectral properties and analysis of pyrylium, benzopyrylium and flavylium salts. • Natural and modified flavonols, coumarins and relative substances as the fluorescent probes for biochemistry and biophysics.

A.D. Roshal, A.V. Grigorovich, A.O. Dorochenko, V.G. Pivovarenko, A.P.Demchenko. *Journal of Physical Chemistry. A.*, **102** (1998), 5907-5914.

A.D. Roshal, A.V. Grigorovich, A.O. Dorochenko, V.G. Pivovarenko, A.P.Demchenko. *Journal of Photochemistry and Photobiology A: Chemistry*, **127** (1999), 89-100.

Date submitted: 24th July 2003

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Specialty Keywords: Plant Physiology and Biochemistry,
Sensory Systems, Spectral analysis.

Autofluorescence of intact plant microspores, which serve for the vegetative or sexual breeding, has been studied. The emission is changed at the microspores germination. Reactive oxygen species (ozone, superoxide anionradical and peroxides) contribute in the autofluorescence and chemiluminescence of pollen and vegetative microspores.

V.V.Roshchina, E.V.Melnikova, V.A.Yashin and V.N. Karnaukhov (2002) Autofluorescence of intact spores of horsetail *Equisetum arvense* L. during their development. *Biophysics (Russia)* **47**(2), 318-324.

V.V.Roshchina, A.V. Miller, V.G. Safronova, and V.N. Karnaukhov (2003) Reactive oxygen species and luminescence of intact cells of microspores. *Biophysics (Russia)* **48** (2), 259-264.

Date submitted: 26th August 2003

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Specialty Keywords: Dye Lasers, Ultrafast Spectroscopy,
Fluorescent Probes.

The main results are in the field of ruby and neodymium glass lasers (early 1960s); various types of dye lasers and laser dyes (State Prize of USSR, 1972); laser spectroscopy of organic solutions (State Prize of Belarus, 1994); intracavity laser spectroscopy; distributed-feedback (DFB) lasers including holographic DFB lasers; mode locked dye lasers and time resolved laser spectroscopy of organic molecules in solutions and bio-membranes; interaction of gradient laser fields with biological objects.

Rück, A.
Rurack, K.

Date submitted: 12th September 2002

Angelika Rück, Ph.D.



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Specialty Keywords: FLIM, Microspectrofluorometry, PDT.

Development of methods for spectral fluorescence lifetime imaging, based on time correlated single photon counting in combination with laser scanning microscopes for detection and dynamic analysis of signal transduction pathways in living cells during photodynamic therapy (PDT). Cellular characterization and evaluation of new photosensitizers with one- and two-photon spectral-resolved microscopy. Definition of protein standards for FLIM/FRET measurements of protein interactions in living cells.

A. Rück et al., Light-induced apoptosis involves a defined sequence of cytoplasmic and nuclear calcium release in AlPcS₄-photosensitized cells. *Photochem. Photobiol.*, 2000, 72(2): 210-216.
M. Kress and A. Rück, Time-resolved microspectrofluorometry and FLIM of photosensitizers using ps pulsed diode lasers in laser scanning microscopes. *J. Biomed. Optics*, accepted.

Date submitted: 15th August 2003

Knut Rurack, Ph.D.



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knut.rurack@bam.de

Specialty Keywords: Functional dyes, Time-resolved fluorescence, Host-guest chemistry.

Development of functionalized dyes for various applications and the study of the underlying photophysical and -chemical processes (e.g. charge, electron, proton transfer). Investigation of fluorophores in confined media. Development of fluorescence lifetime standards.

A. B. Descalzo et al. (2003). Coupling selectivity with sensitivity in an integrated chemosensor framework: Design of a Hg²⁺-responsive probe, operating above 500 nm, *J. Am. Chem. Soc.* **125** 3418.

K. Rurack et al. (2002). 2,2'-Bipyridyl-3,3'-diol incorporated into AlPO₄-5 crystals and its spectroscopic properties as related to aqueous liquid media, *J. Phys. Chem. B* **106** 9744.

Date submitted: 6th September 2002

Jean-Marie Ruysschaert, Ph.D.



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Specialty Keywords: Hydrogen/ deuterium exchange,
Fluorescence quenching, Long-range conformational changes.

We have developed a new method to detect changes occurring in the membrane embedded and cytosolic domains of membrane proteins by combining infrared linear dichroic spectra measurements in the course of hydrogen/deuterium exchange with Trp fluorescence quenching by water soluble attenuators. This new approach is of general interest in the study of membrane proteins to detect long-range conformational changes transmitted between the membrane embedded and cytosolic domains.

Grimard V., Vigano C., Margolles A., Wattiez R., van Veen H.W., Konings W.N., Ruysschaert J.-M. and Goormaghtigh E. (2001) *Biochemistry* 40, 11876-11886.

Date submitted: 7th July 2003

Alan G. Ryder, Ph.D.



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Specialty Keywords: Time-resolved, Petroleum, Raman.

Science Foundation Ireland Investigator leading the Nanoscale Biophotonics research group, which uses fluorescence and Raman spectroscopies for the development of quantitative and qualitative analysis methods. Research areas include: nanoscale fabrication, lifetime based pH sensors, quantitative Raman spectroscopy for forensics, time-resolved fluorescence instrumentation development, and the fluorescence behavior of crude petroleum oil.

A.G. Ryder, S. Power, and T.J. Glynn (2003). Evaluation of acridine in Nafion as a fluorescence lifetime based pH sensor. *Applied Spectroscopy*, **57**(1), 73-79.

A.G. Ryder (2002). Classification of narcotics in solid mixtures using Principal Component Analysis and Raman spectroscopy., *J. Forensic Sci.* **47**(2), 275-284.

Date submitted: 19th July 2002

Carlota Saldanha, Ph.D.



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Specialty Keywords: Acetylcholinesterase, Membrane fluidity,
Calcium ion.

Enzyme kinetics studies, namely human erythrocyte and lymphocyte acetylcholinesterase, using fluorescent enzyme substrate and inhibitors. Studies of erythrocyte, lymphocyte and endothelial cells membrane fluidity and erythrocyte exovesiculation using the fluorescent probes diphenylhexatriene, trimethylamino-diphenylhexatriene and hydroxycoumarin. Studies of intracellular second messengers, namely calcium ion and nitrogen monoxide with fluorescent probes.

C. Saldanha and J. Martins-Silva (1996) *Biochem. Educ.* **24**, 235-236.

N. C. Santos, J. Figueira-Coelho, C. Saldanha, and J. Martins-Silva (2002) *Cell Calcium* **31**, 183-188.

Date submitted: 13th September 2002

Jeffrey S. Sanford, B.S.



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Specialty Keywords: FISH, Anatomic Pathology, Automation,
Fluorescence Microscopy.

FISH diagnostics and AP laboratory automation HER-2/neu, BCR/abl, PML/RARA, Ploidy Breast, Prostate, and Renal Cancer, Leukemias and Lymphomas.

Wolman SR, Sanford JS, Flom K, Feiner H, Abati A, Bedrossian C: Genetic probes in cytology: Principles and Practice, Diagnostic Cytopathology, 13;429-435, 1996.

Micale MA, Sanford JS, Powell IJ, Sakr WA, Wolman SR: Defining the Extent and Nature of Cytogenetic Events in Prostatic Adenocarcinoma: Paraffin FISH vs. Metaphase Analysis. Cancer Genetics and Cytogenetics, 69;7-12, 1993.

Date submitted: 19th July 2002

Nuno C. Santos, Ph.D.



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Specialty Keywords: Protein intrinsic fluorescence,
Biomembranes, HIV.

Use of steady-state and time resolved fluorescence spectroscopy (including fluorescence anisotropy, quenching, energy transfer, energy migration and red edge excitation shift) on the study of membrane proteins structure and location, intracellular ion concentration, membrane fluidity, partition of peptides and other fluorescent molecules to biomembranes, erythrocyte membrane vesiculation and binding of small fluorescent molecules to proteins. Characterization of supramolecular systems by light scattering spectroscopy.

N. C. Santos, M. Prieto, and M. A. R. B. Castanho (1998) *Biochemistry* **37**, 8674-8682.

N. C. Santos, J. Figueira-Coelho, C. Saldanha, and J. Martins-Silva (2002) *Cell Calcium* **31**, 183-188.

Date submitted: 17th August 2003

William H. Sawyer, Ph.D.



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Specialty Keywords: Molecular interactions, Phosphorescence,
Binding analysis.

Recent work has focused on the interaction of repressor proteins with DNA and amphipathic peptides with phospholipids bilayers. The interaction of the tyrR repressor protein with DNA has been followed using DNA that has been fluorescently labeled at various bases within the recognition sequence. Time-resolved fluorescence and anisotropy of tryptophan at various positions along an amphipathic peptide has revealed the dynamics and structure of the peptide-membrane. Fundamental studies of the fluorescence of fluorescein have continued.

A.H.A. Clayton and W.H. Sawyer (2000) Tryptophan rotamer distributions in amphipathic peptides at a lipid surface. *Biophys. J.* **76**, 3235-3242.

Scarlata, S. F.
Schmid, J. A.

Date submitted: 23rd July 2003

Suzanne F. Scarlata, Ph.D.



Dept. Physiology & Biophysics, S.U.N.Y. Stony Brook,
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www.pnb.sunysb.edu/faculty/scarlatta/scarlata.html

Specialty Keywords: Cell signaling, Protein-protein
associations, Lipids.

The main focus of our laboratory is to understand the mechanism through which signals are transduced through heterotrimeric G proteins. We employ green fluorescent protein analog tags and commercial probes to follow the interactions between these proteins in purified systems and in living cells using a variety of fluorescence methods. A second project our laboratory is to understand the mechanism of assembly of HIV-1 in host cells. In this project we employ many fluorescence methods including high pressure fluorescence spectroscopy.

Y. Guo, F. Philip and S.Scarlata (2003) *J.Biol.Chem.* (in press).

S. Scarlata and C.Carter (2003) *Biochim.Biophys.Acta* (review) **1614**, 62-72.

Date submitted: 16th August 2002

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www.univie.ac.at/VascBio/schmid/

Specialty Keywords: FRET, Signal transduction.

Current research interests comprise the mechanisms of endothelial cell activation, as well as deactivation, with special focus on the signal-transduction of the NF- κ B pathway and its interconnection with other pathways. GFP-fusion proteins are used to elucidate the dynamics of signaling molecules in vivo. CFP and YFP-fusion proteins are used to localize protein-interactions in living cells by fluorescence resonance energy transfer microscopy.

J.A. Schmid et al., A. Birbach, R. Hofer-Warbinek, M. Pengg, U. Burner, P.G. Furtmuller, B.R. Binder, R. de Martin R: *J. Biol. Chem.* 275(22), 17035-42 (2000).

Birbach A., Gold P., Binder B.R., Hofer E., de Martin R., Schmid J.A. *J. Biol. Chem.* 277(13):10842-51 (2002).

Date submitted: 14th May 2003

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Specialty Keywords: Biomedical Optics, Optical Microscopy,
Fluorescence Lifetime Imaging (FLIM).

Research is concentrated on the development and application of new methods of *in vitro* diagnostics and biomedical screening. Present techniques include fluorescence spectroscopy and microscopy, in particular time-resolved spectroscopy, total internal reflection fluorescence microscopy (TIRFM), energy transfer spectroscopy (FRET) and laser micromanipulation. Cell metabolism and light-induced reactions are studied within whole cells, mitochondria and cell membranes using autofluorescence, various fluorescence markers and photosensitizers.

Date submitted: 20th August 2003

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Specialty Keywords: Amine-reactive labels, Protein stains and
labels, Organic syntheses.

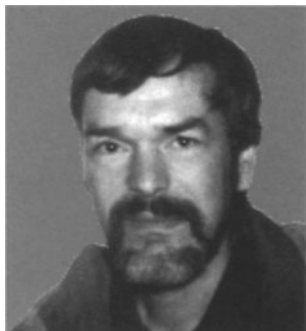
Senior scientist in R&D; in charge of the scientific and technical aspects of the development of the Fluka sales program 'fluorescent markers'. Recent R&D work, partly in cooperation with external groups:

- new fluorescent succinimidylester dyes for multi-labelling of proteins
- novel assay for succinimidylester purity
- fluorescence based analytical kits
- DNA stains

V.B. Kovalska*, I.O. Kocheshev*, D.V.Kryvorotenko*, A.Balanda*, B. Schoenenberger[#] and S.M. Yarmoluk, Poster MAF 2003, Prague, Czech Republic.

**Schroeder, J.
Schulman, S. G.**

Date submitted: 29th August 2003



Jörg Schroeder, Ph.D.

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Specialty Keywords: Photochemical kinetics, Energy transfer.

The main research area centers on the dynamics of elementary photoinduced reactions, in particular systematic investigations of solvation effects in supercritical fluid and liquid solution. For this purpose, time-resolved fluorescence and absorption techniques are applied to samples in environments of continuously variable density and polarity. Results are compared to classical and mixed quantum/classical non-equilibrium molecular dynamics simulations.

J. Schroeder (2001), "Chemical Kinetics in Condensed Phases" in Encyclopedia of Chemical Physics and Physical Chemistry (eds. J.H. Moore, N.D. Spencer), Vol.I, p.711-743, IoP Publishing, Bristol, 2001.

Date submitted: 10th January 2003

Stephen G. Schulman, Ph.D.

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Specialty Keywords: Excited state proton transfer, pH in Aqueous-Organic solvents, Photophysics.

Current Research Interests: Acid-base properties of organic molecules in aqueous and very concentrated aqueous-electrolyte solution. Analytical applications of exciton coupling in metal complexes and organic solids. Room temperature phosphorescence in fluid solutions. Fluorescent probes.

R. Yang and S.G. Schulman (2003). An operational pH in Aqueous Dimethylsulfoxide based upon the acidity dependence of the rate of a simple ionic recombination reaction in the lowest excited singlet state. *Talanta* 60, 535-542.

A. Fernández Gutiérrez and S.G. Schulman, eds., (2001). *Fosforescencia Molecular Analítica: Una Aproximación Práctica*, Universidad de Granada Press, Granada, Spain.

Date submitted: 26th August 2002

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Specialty Keywords: FCS, Two-Photon, Single Molecules.

Development of ultrasensitive fluorescence-based methods for detection and dynamic analysis of single or sparse biomolecules in solution, but also in the living cell. Real-time studies of fluorescent particles in open, laser-illuminated volume elements to unravel underlying inter- and intramolecular processes on time scales from nanoseconds to seconds, but also to uncover static and dynamic heterogeneities, i.e. differences in the molecular properties within ensembles of supposedly identical particles. Design of microfluidic systems for single particle manipulation. Heinze KG, Koltermann A, and Schwille P (2000). Simultaneous Two-Photon Excitation of Distinct Labels For Dual-Color Fluorescence Cross-Correlation Analysis. *PNAS* **97**,10377-10382 Bacia K, Majoul IV, and Schwille P (2002). Probing the Endocytic Pathway in Live Cells Using Dual-Color Fluorescence Cross-Correlation Analysis. *Biophys. J.* **83**,1184-1193.

Date submitted: 15th September 2003

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Specialty Keywords: Biosensor, Fluorescence,
Nanotechnologies.

My scientific interests deal with the development of a new generation of biosensor for analytes of high clinical, environment and food interests based on the utilization of enzymes and proteins isolated from mesophilic and thermophilic organisms. My primary goal is to identify, characterize and design enzymes and proteins to use as probes for implantable fluorescence nanodevices for the follow-up of diseases of high social impact.

Date submitted: 23rd August 2002



Ine Segers-Nolten, (Ph.D. Student)

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tnweb.tn.utwente.nl/bft/

Specialty Keywords: Single molecule fluorescence, Confocal, NER.

Scanning confocal fluorescence microscopy is used for a single molecule study of the Nucleotide Excision Repair process. NER-GFP fusion proteins are combined with fluorescently labeled DNA substrates to form complexes. Samples are prepared in agarose gel matrices, where uncomplexed DNA is rapidly diffusing and DNA-protein complexes are immobilized. Colocalization of GFP-label on the NER-protein with the DNA-label is an indication of complex formation. This method allows the study of protein-DNA binding under equilibrium conditions.

G.M.J. Segers-Nolten, C. Wyman, N. Wijgers, W. Vermeulen, A.T.M. Lenferink, J.H.J. Hoeijmakers, J. Greve, C. Otto, Scanning Confocal Fluorescence Microscopy for Single Molecule Analysis of Nucleotide Excision Repair Complexes, submitted to NAR, 2002.

Date submitted: 21st August 2002



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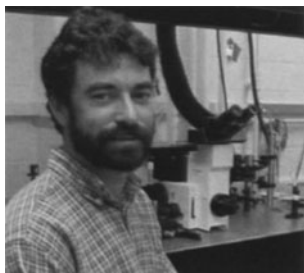
Specialty Keywords: Single-molecule fluorescence spectroscopy, Multiparameter fluorescence detection (MFD).

It is my goal to obtain all information in a single-molecule experiment for applications in analytics and biophysics. Thus, as many fluorescence photons as possible must be detected, and a full set of fluorescence parameters must be registered by MFD: Intensity, F , lifetime, τ and anisotropy, r , in several spectral windows together with its time-dependence [1].

[1] R. Kuehnemuth, C. A. M. Seidel; (2001) Principles of single molecule multiparameter fluorescence spectroscopy *Single Molecules* **2**, 251-254.

Date submitted: 26th August 2002

Paul R. Selvin, Ph.D.



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Specialty Keywords: Lanthanide luminescence, FRET, Single-molecule.

We develop and use fluorescence techniques with (sub)nanometer resolution, including new forms of FRET – e.g. single-pair FRET, FRET using luminescent lanthanide chelates. A major emphasis is developing new lanthanide chelates. Applications include measuring conformational changes in myosin and ion channels.

Cha, A., G. E. Snyder, P. R. Selvin, and F. Bezanilla. 1999. Atomic scale movement of the voltage sensing region in a potassium channel measured via spectroscopy. *Nature*. 402:809-813.

Selvin, P. R. 2002. Principles and Biophysical Applications of Luminescent Lanthanide Probes. *Annual Review of Biophysics and Biomolecular Structure*. 31:275-302.

Date submitted: 5th August 2003

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Specialty Keywords: Cancer, Photodynamic therapy, Optical biopsy.

Research interests are optical biopsy, photodynamic therapy optimization for oncological patients, refine and improve therapy both by clinical modifications and via dosimetry enhancement.

Cuenca RE, Allison R, Downie G, Sibata C. Breast Cancer with chest wall progression: treating with Photodynamic Therapy. *Annals of Surgical Oncology*, in press.

Sibata CH, Colussi VC, Oleinick NL, Kinsella TK. Photodynamic Therapy in Oncology. *Expert Opinion on Pharmacotherapy*, 2001, 2:917-928.

Siebert, R.
Siemiarczuk, A.

Date submitted: 22nd August 2002

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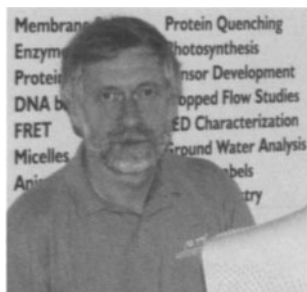
Specialty Keywords: Combined immunofluorescence and fluorescence in situ hybridization (FICTION).

With regard to fluorescence microscopy, the projects of our research group focus on the development of fluorescence in situ hybridization (FISH) assays for the detection of chromosomal abnormalities in tumors, as well as on the technical improvements of combined fluorescence immunophenotyping and interphase cytogenetics (FICTION technique). Current interests are the development of an automated platform for the detection of rare tumor cells and spot counting of multicolor hybridization signals.

J.I. Martin-Subero, I. Chudoba, L. Harder, S. Gesk, W. Grote, F.J. Novo, M.J. Calasanz, R. Siebert (2002). Multicolor-FICTION: Expanding the Possibilities of Combined Morphologic, Immunophenotypic, and Genetic Single Cell Analyses, *Am. J. Pathol.*, **161**, 413-420.

Date submitted: 10th September 2002

Aleksander Siemiarczuk, Ph.D.



Photon Technology International,
347 Consortium Court,
London, Ontario,
Canada, N6E 2S8.

Tel: (519) 668 6920

asiemiarczuk@pti-can.com

www.pti-nj.com

Specialty Keywords: Time-resolved fluorescence, Lifetime distributions, TICT states.

Past and present research activities include co-discovery of Twisted Intramolecular Charge Transfer States (TICT), studies of intramolecular and solvation dynamics, long-range electron transfer in linked porphyrin-quinone derivatives, fluorescence in heterogeneous systems with lifetime distributions, development of a new methodology to study polydispersity of micelles using lifetime distributions, complexes with cyclodextrins, time-resolved fluorescence of proteins, photophysics of curcumin derivatives, development of time-resolved instrumentation.

A Time-Resolved and Steady-State Fluorescence Quenching Study on Naproxen and Its Cyclodextrin Complexes in Water, N. Sadlej-Sosnowska and A. Siemiarczuk (2001) *Photochem. Photobiol.* **138**, 34-40.

Date submitted: 13th September 2002

Manoj K. Singh, Ph.D.



Department of Chemistry, University of Kansas,
1251 Wescoe Hall Drive, Lawrence,
KS 66045, USA.
Tel: (785) 864 3679
mksingh@ku.edu & k_singh@vsnl.net
On leave from: Spectroscopy Division, B.A.R.C.
Mumbai-400085, India.

Specialty Keywords: Time-resolved spectroscopy, Single molecule fluorescence.

I have been mainly involved with the investigations on the photophysics, photochemistry and rotational dynamics of dye molecules in liquid phase using time-resolved fluorescence and transient absorption techniques. Recently, the focus of my research mostly involves the study of protein dynamics at the single molecule level. We are investigating the dynamics of calmodulin, a calcium signaling protein and its targets using single molecule time-resolved fluorescence and fluorescence polarization techniques.

1. M. K. Singh (2000) *Photochem. Photobiol.* **72**, 438-443.

Date submitted: 23rd July 2003

Harald H. Sitte, M.D.



Medical University of Vienna,
Institute of Pharmacology,
Währingerstr. 13a, A-1090 Vienna,
Austria.
Tel: 43 1 42 776 4188 Fax: 43 1 42 776 4122
harald.sitte@univie.ac.at

Specialty Keywords: Fluorescence Microscopy, Fluorescence Resonance Energy Transfer, Membrane Proteins.

My research focuses on the understanding of the quaternary structure of membrane proteins, *i.e.* transport proteins like the serotonin or the GABA transporter. We use Fluorescence Resonance Energy Transfer Microscopy to learn more about their structural constraints and the impact, oligomerization may have on the function of these proteins.

- Scholze P, Freissmuth M, Sitte HH. (2002) Mutations within an intramembrane leucine heptad repeat disrupt oligomer formation of the rat GABA transporter 1. *J Biol Chem.*;277:43682-90.
Schmid JA, Sitte HH. (2003) Fluorescence resonance energy transfer in the study of cancer pathways. *Curr Opin Oncol.*;15(1):55-64.

Smirnov, A. V.
Smith, C. B.

Date submitted: 9th September 2002

Aleksandr V. Smirnov, Ph.D.



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National Heart, Lung and Blood Inst., National Inst. of Health,
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avs@helix.nih.gov
www.nhlbi.nih.gov/labs/biophysicalchem/index.htm

Specialty Keywords: Transient spectroscopy, Lasers,
Biophysics.

My research interests focus on dynamical aspect of bimolecular function. The knowledge of structure and composition is essential but true understanding of mechanism involved is often impossible without direct observation of how it happens in real time. My methods of choice are femtosecond transient absorbance and laser induced fluorescence spectroscopy. This enables one to follow changes in state and environment of synthetic and natural optical probes, such as tryptophan. Also I develop stopped-flow techniques to study kinetics of biochemical reactions.

A. V. Smirnov *et. al.* (1997). Photophysics and Biological Applications of 7-Azaindole and its Analogs. *J. Phys. Chem. B*, **101**(15), 2758-2769.

Date submitted: 8th August 2002

Clint B. Smith, M.S.



U.S. Army Engineering Research and Development Center,
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USAERDC-TEC, 7701 Telegraph Road, Alexandria,
Virginia, 22315, USA.
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clint.b.smith@erdc.usace.army.mil
www.tec.army.mil

Specialty Keywords: Fluorescence Remote Sensing, Enzyme
Substrates, Waterborne pathogens.

Research in the laboratory involves fluorescence remote sensing applications for waterborne pathogens. Novel fluorescent probes and enzyme substrates are utilized for the detection of pathogens existing in waterways using state-of-the-art fluorescent spectrometers. Applications are geared toward the imaging domain and will be developed after performing successful laboratory experiments binding molecular probes to specific targets.

Anderson, J.E., Webb, S.R., Fischer, R.L., Smith, C.B., Dennis, J.R., and Di Benedetto, J. (2002). *In Situ* Detection of the Pathogen Indicator *E.coli* Using Active Laser-Induced Fluorescence Imaging and Defined Substrate Conversion. *Journal of Fluorescence*. (12) 1 p. 51-55.

Date submitted: 23rd July 2003

Trevor A. Smith, Ph.D.



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trevoras@unimelb.edu.au
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Specialty Keywords: Time-resolved fluorescence, Anisotropy, Microscopy.

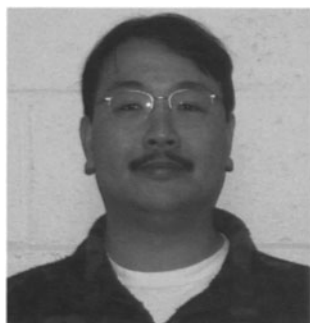
Research Interests: ultrafast laser spectroscopic techniques applied to photophysical processes in macromolecules such as polymers, photo-induced electron and energy transfer in supramolecules. Time resolved fluorescence microscopy techniques including multi-photon and confocal fluorescence microscopy. Time-resolved fluorescence anisotropy measurements, rheo-optical studies, time-resolved evanescent wave-induced fluorescence techniques.

L. Lensun, et al. (2002). The Partial Denaturation of Silica-Adsorbed Bovine Serum Albumin Determined by Time-Resolved Evanescent Wave-Induced Fluorescence Spectroscopy *Langmuir* **18**, 9924-9931.

T. A. Smith, et al. (2002). Fluorescence Polarization Measurements of the Local Viscosity of Hydroxypropyl Guar in Solution *Macromolecules* **35**, 2736-2742.

Date submitted: 1st May 2002

Peter T. C. So, Ph.D.



Department of Mechanical Engineering,
Department of Biological Engineering,
Massachusetts Institute of Technology,
3-461, 77 Mass Ave,
Cambridge, MA, 02139,
USA.

Tel: (617) 253 6552 Fax: (617) 258 9346
ptso@mit.edu

Specialty Keywords: Multi-photon microscopy, Time-resolved spectroscopy, Correlation spectroscopy.

My research focuses on the development of instrumentation for biomedical studies. Recent projects in my laboratory include video rate two-photon microscopy, fluorescence correlation spectroscopy, 3-D image cytometry. These instruments are applied in studies such as: Protein dynamics, cellular mechanotransduction, tissue carcinogenesis, and non-invasive optical biopsy.

So et al., "Two-Photon Excitation Microscopy", *Annu. Rev. Biomed. Eng.*, **2**, 399-429 (2001).

Huang et al., "Three-Dimensional Cellular Deformation Analysis with a Two-Photon Magnetic Manipulator Workstation," *Biophys. J.*, **82**, 2211-2223 (2002).

Date submitted: 27th August 2002

Steven A. Soper, Ph.D.



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LA 70803-1804,
USA.

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Specialty Keywords: Near-IR Fluorescence, Time-Resolved Fluorescence, Single Molecule Detection.

Ultrasensitive time-resolved fluorescence spectroscopy; dye photophysics and photochemistry; bioanalytical and environmental applications of near-infrared fluorescence; capillary zone and gel electrophoresis using fluorescence detection; development of novel laser-based DNA analysis schemes; bioanalytical applications of laser-induced fluorescence detection; development of microfabricated biochemical analysis systems; single molecule detection using near-IR fluorescence detection.

E. Waddell, Y. Wang, W. Stryjewski, S. McWhorter, A. Henry, D. Evans, R. L. McCarley and **S. A. Soper**, *Anal. Chem.* 72 (2000) 5907.
S. Lassiter and **S.A. Soper**, *Electrophoresis* 23 (2002) 1480.

Date submitted: 13th September 2002

Ian Soutar, Ph.D.

Chemistry Department,
University of Sheffield,
Brook Hill, Sheffield,
S3 7HF, UK.

Tel: +44 (0)114 222 9561 Fax: +44 (0)114 273 8673
i.soutar@sheffield.ac.uk

Specialty Keywords: Anisotropy, Energy Harvesting, Polymers.

Research Interests: Studies of polymer behavior both in solution and the solid state using time-resolved emission anisotropy, Water-soluble polymers, Smart systems, Polymers for energy harvesting and solar energy conversion.

D. Allsop, L. Swanson, I. Soutar et al. (2001) "Fluorescence Anisotropy: A Method for Early Detection of Alzheimer β -Peptide Aggregation" *Biochem. Biophys. Res. Comm.*, **285**, 58-63.
C.K. Chee, I. Soutar et al. (2001) "Time-resolved Fluorescence Studies of the Interactions Between the Thermoresponsive host, PNIPAM, and Pyrene" *Polymer*, **42**, 1067-1071.

Date submitted: 14th August 2003

C. Michael Stanley, Ph.D.



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Vermont 05101, USA.
Tel: 800 824 7662 (US only)
Tel: 802 428 2500 Fax: 802 428 2525
m@chroma.com
www.chroma.com

Specialty Keywords: Confocal, Multi-Photon, Laser Based Applications.

Previous research and experience, in both confocal and widefield imaging systems, allows me to design, collaborate, and trouble-shoot fluorescent experimental designs. The emphasis is on laser based systems, in both one and multi-photon applications.

Chroma Technology's filters have been developed for a variety of applications: low-light microscopy, cytometry; spectroscopy and laser-based confocal and multi-photon instrumentation.

Date submitted: 23rd August 2002

Elias Stathatos, Ph.D.



Engineering Science Dept.,
University of Patras,
26500 Patras,
Greece.
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stathatos@des.upatras.gr

Specialty Keywords: Photophysics, Sol-gel, Solid-state electrolytes.

Research interests include steady-state and time-resolved fluorescence characterization of nanocomposite thin films and transparent solid matrices. Applications involve dye-sensitized photoelectrochemical cells, photocatalytic metal oxide surfaces, lasing in nanocomposite and organic materials and electroluminescence of ligand lanthanide complexes.

E.Stathatos, P.Lianos, Ch.Krontiras (2001) *J.Phys.Chem. B.* 105, 3486-3492.

E.Stathatos, P.Lianos, U.Lavrencic Stangar and B. Orel. (2001) *Chem. Phys. Letters* 345, 381-385.

Stella, L.
Stockholm, D. W.

Date submitted: 25th July 2003

Lorenzo Stella, Ph.D.



Department of Chemical Sciences and Technologies,
University of Roma Tor Vergata,
Via della ricerca scientifica,
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E-mail Address

Homepage URL

Specialty Keywords: Peptide and protein structure and dynamics, Peptide-membrane interactions.

My main research focus is the application of fluorescence spectroscopy in the study of protein and peptide structure and dynamics. Some current research projects: mechanism of action of antimicrobial peptides and their interaction with membranes; design and characterization of peptide-based molecular devices utilizing photophysical processes for memories, switches and energy conversion; Comparisons between time-resolved fluorescence spectroscopy and computer simulations.

L. Stella et al. (2002) Structural features of model glycopeptides in solution and in membrane phase. A spectroscopic and molecular mechanics investigation. *Biopolymers* **64**, 44-56.

L. Stella (2001) Comparisons between time-resolved fluorescence experiments and computer simulations. In "Spectroscopic techniques in biophysics", IOS Press (Amsterdam), pp. 89-103.

Date submitted: 11th September 2002

Daniel W. Stockholm, Ph.D.



Laboratoire d'imagerie, Genethon,
1 bis rue de l'Internationale,
Evry, 91000,
France.

Tel: 01 60 77 8698
stockho@genethon.fr

Specialty Keywords: Confocal microscopy, Muscle visualization, Real-time PCR.

We are part of a research center focussed on gene therapy and run a core service for imaging with 2 confocal microscopes including a multiphoton. We use FRET for the study of calpain function and are developing techniques for the intra vital imaging. We also acquired some expertise in real-time PCR and use it extensively for gene expression studies and viral titration.

Stockholm D, et al. , *Am J Physiol Cell Physiol*, 2001, Jun;280(6):C1561-9.

Feasson L, Stockholm D, et al. *J Physiol*. 2002 Aug 15;543(Pt 1):297-306.

Date submitted: 27th August 2003

Karel W. J. Stoop, M.Sc.



Lambert Instruments,
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9313 TH, Leutingewolde,
The Netherlands.

Tel: +31 50 501 8461 Fax: +31 50 501 0034
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www.lambert-instruments.com

Specialty Keywords: Fluorescence Lifetime Imaging
Microscopy, Image Intensifiers, FRET.

My work is focused on the ongoing development of the Fluorescence Lifetime Imaging Microscopy (FLIM), on a wide field microscope. We work in the frequency domain. Our specialty is the use of LED's as the modulated light source, rather than (expensive) lasers. The FLIM-system is mostly used for FRET of the protein pairs GFP-DsRed and CFP-YFP.

K.W.J. Stoop, L.K. van Geest, C.J.R. van der Oord (2002): LIFA, System for fluorescence lifetime imaging microscopy (FLIM). www.lambert-instruments.com/research.

Date submitted: 22nd August 2002

John C. Sutherland, Ph.D.



Biology Department,
Brookhaven National Laboratory,
Upton, NY, 11973,
USA.

Tel: 631 344 3279
jcs@bnl.gov

bnlstb.bio.bnl.gov/biodocs/structure/J_Sutherland.htmlx

Specialty Keywords: Time-resolved fluorescence and circular
dichroism using synchrotron radiation, DNA damage
quantitation by gel electrophoresis and single molecule sizing.

Pioneered the use of synchrotron radiation for the measurement of circular dichroism and time-resolved fluorescence spectroscopy in the ultraviolet/visible spectral regions. Invented the Fluorescence Omnylizer, a single-photon counting detector that records the time-delay, wavelength and polarization of each detected photon. First to use CCD camera to record image of DNA fluorescence in electrophoretic gels. Uses gel fluorescence or single-molecule laser fluorescence sizing to quantify DNA damage by average length analysis.

**Swanson, L.
Swift, K. M.**

Date submitted: 13th September 2002

Linda Swanson, Ph.D.

Chemistry Department,
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Brook Hill, Sheffield,
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Tel: +44 (0)114 222 9564 Fax: +44 (0)114 273 8673
l.swanson@sheffield.ac.uk

Specialty Keywords: Anisotropy, Smart Polymers, Polymer Dynamics.

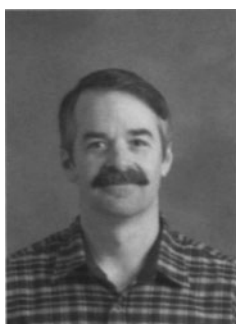
Research Interests: Anisotropy studies of the conformational behavior of smart polymers. Polymer dynamics. Polymer interactions (synthetic and biomacromolecules). Polymer relaxation behavior in the solid state. Novel polymeric materials for enhanced solar energy conversion.

L. Swanson, et al., (2001). "Manipulating the thermoresponsive behavior of PNIPAM" *Macromolecules* **34**, 544-754.

N. J. Flint, S. Gardebrecht and L. Swanson, (1998). "Luminescence investigations of smart microgel systems", *J. Fluorescence*, **8**, 343-353.

Date submitted: 10th September 2002

Kerry M. Swift, M.S.



Abbott Laboratories,
Global Pharmaceutical Research and Development,
Department of Structural Biology, R46Y / AP9LL,
Abbott Park, IL 60064-6114, USA.
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Kerry.Swift@abbott.com

Specialty Keywords: Drug discovery, Binding, Fluorescence lifetimes, FCS, HTS.

My research within the optical spectroscopy group here at Abbott in the last 10 years has been toward characterizing or improving fluorescent probe-based assays for testing of drug-like compounds. Furthermore, I sometimes use the intrinsic fluorescence of proteins to study their structure or binding. I am also developing the use of Raman microscopy on protein crystals.

Sergey Y. Tetin, Kerry M. Swift and Edmund D. Matayoshi (2002). Measuring antibody affinity and performing immunoassay at the single molecule level *Analytical Biochemistry* **307**(1) 84-91.

A. M. Petros, A. Medek, D. G. Nettesheim, D. H. Kim, H. S. Yoon, K. Swift, E. D. Matayoshi, T. Oltersdorf and S. W. Fesik (2001). Solution structure of the anti-apoptotic protein bcl-2 *Proc. Natl. Acad. of Sci. USA* **98**(6) 3012-3017.

Date submitted: 13th September 2002

Henryk Szmacinski, Ph.D.

Microcosm Inc.,
9140 Guilford Road, Suite O,
Columbia, MD 21046,
USA.

Tel: (301)725 2775 Fax: (301)725 2941
henryks@microcosm.com

Specialty Keywords: Spectroscopy, Fluorescence Probes, Optical Sensing.

My research interests include UV/VIS spectroscopy, optical sensors and biosensors, frequency-domain time resolved spectroscopy, and multi-photon microscopy. This involves of application of fluorescence lifetime to chemical sensing and imaging, immunoassays, DNA hybridization and cellular studies. Current interest is in development of disposable sensor arrays for biotechnology and clinical chemistry and exploring enhanced fluorescence using metallic nano-structures.

Measurement of Intensity of Long Lifetime Luminophres in the Presence of Background Signals Using Phase-Modulation Fluorometry. H. Szmacinski and J.R. Lakowicz, Appl. Specrosc. 53:1490-1495, 1999.

Date submitted: 3rd September 2002

Patrice Talaga, Ph.D.



Chemical Research, UCB S.A.,
Chemin du Foriest, Braine l'Alleud,
1420,
Belgium.

Tel: 32 2 386 2727 Fax: 32 2 386 2704
patrice.talaga@ucb-group.com

Specialty Keywords: Drug discovery, Medicinal chemistry,
Alzheimer's Disease.

Current Interests: External Chemical Research. Management of Academic & CRO collaborations in Chemistry, CombiChem & custom synthesis. Research interest in CNS (Alzheimer's Disease, Parkinson's Disease, and Epilepsy...) and Immuno-Allergy (Rhinitis, Asthma...) areas. Particular interest in Amyloid aggregation related research.

β -Amyloid Aggregation Inhibitors for the Treatment of Alzheimer's Disease: Dream or Reality? P. Talaga. Mini Reviews in Med. Chem. 2001, 1, 175-186.

First Dual NK1 Antagonists-Serotonin Reuptake Inhibitors: Synthesis and SAR of a New Class of Potential Antidepressants. T. Ryckmans et al. Bioorg. Med. Chem. Letters 2002, 12, 261-264.

Tanaka, F.
Tanke, H. J.

Date submitted: 3rd September 2003

Fumio Tanaka, Ph.D.



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Yumegaoka 1-1-1,
Tsu 514-0116,
Japan.
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fumio.tanaka@mcn.ac.jp

Specialty Keywords: Fluorescence, Decay, Analysis, Flavin, Theory of Anisotropy.

Current Research Interest: I am working mostly on the time-resolved fluorescence of tryptophan and flavins in proteins in sub-picosecond region. I was much inspired on theory of anisotropy by knowing Weber's the Additivity Law of Polarization. I still have interested in developing the theory of fluorescence anisotropy.

N. Tamai et al. (2002), Solvation dynamics of the excited 1,2-(p-cyano-p'-methoxydiphenyl)-ethyne: *J. Phys. Chem. A*, **106**, 2164-2172.

K. Sato, et al. (2003) Hydrogen-bonding dynamics of free flavins in benzene and FAD in electron-transferring Flavoprotein upon excitation; *J. Photochem. and Photobiol. B*. **70** 67-73.

Date submitted: 26th July 2002

Hans J. Tanke, Ph.D.



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Leiden University Medical Center,
Wassenaarseweg 72, 2333 AL Leiden,
The Netherlands.

Tel: +31 71 527 6196 Fax: +31 71 527 6180
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Specialty Keywords: Fluorescence technology, Molecular analysis, Microscopy.

The study of the molecular composition of cells and chromosomes, using fluorescence labeling technology (FISH, immunocytochemistry, GFP) and (automated) digital microscopy, in order to unravel the molecular mechanisms that determine normal and abnormal cell function. The use of this information and methodology to develop improved diagnostic methods to be applied in the field of genetics, haematology and oncology.

Rijke F.v.d. et al. Up-converting phosphor reporters for nucleic acid microarrays. *Nature Biotechnology* 19:273-276, 2001. Ref. 2: Snaar SP et al. Mutational analysis of fibrillarin and its mobility in living cells. *J. Cell Biol.* 151:653-662, 2000.

Date submitted: 13th September 2002

Olga Tchaikovskaya, Ph.D.



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Russia.

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tchon@phys.tsu.ru

Specialty Keywords: Photophysics, Photochemistry.

The photophysical and photochemical properties of phenols in aqueous solution with and without irradiation were investigated¹. Also the phenols photolysis in water with humic acid, a comparative analysis of the efficiency of photochemical and microbiological phenol destruction were studied².

O.N.Tchaikovskaia, I.V.Sokolova, V.A.Svetlichnyi, et al. Journal of Fluorescence, Vol. 10, No. 4, 2000, P. 403-408.

O.N.Tchaikovskaia, I.Sokolova, L.Kondratieva, et al. Inter. J. of Photoenergy, 2001, Vol.3, No.4, P.177-180.

Date submitted: 24th July 2002

Richard B. Thompson, Ph.D.



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University of Maryland School of Medicine,
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Maryland 21201, USA.

Tel: (410) 706 7142 Fax: (410) 706 7122
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Specialty Keywords: Biosensors, Fiber optic sensors, Metal ions
"Our work has focused on fluorescence-based biosensors and
fiber optic biosensors. Our metal ion biosensors employ

carbonic anhydrase II variants as recognition molecules, which transduce the concentrations of metal ions such as Cu(II), Zn(II), and others as changes in fluorescence lifetime, polarization, or intensity ratio. Carbonic anhydrase gives the sensor unmatched sensitivity (to picomolar and below) and selectivity (demonstrated in sea water and cerebrospinal fluid), which both can be modulated by subtle changes in the protein structure. Use of optical fiber permits remote, continuous monitoring in situ.

C. A. Fierke and R. B. Thompson, "Fluorescence-based biosensing of zinc using carbonic anhydrase," BioMetals 14 (3-4) 205-222 (2001).

R. B. Thompson, et al., "Fluorescent zinc indicators for neurobiology," Journal of Neuroscience Methods 118, 63-75 (2002).

Tilley, L.
Tölgyesi, F. G.

Date submitted: 6th May 2002

Leann Tilley, Ph.D.



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www.latrobe.edu.au/biochemistry/

Specialty Keywords: FRAP, Far red fluorophore, GFP.

Use of fluorescence recovery after photobleaching protocols and GFP transfection to study the molecular dynamics of proteins in uninfected and malaria parasite-infected erythrocytes. Synthesis and characterisation of novel far red-absorbing chromophores.

Klonis, N., Rug, M., Wickham, M., Harper, I., Cowman, A. and Tilley, L. (2002) Fluorescence photobleaching analysis for the study of cellular dynamics. *European Journal of Biophysics* (review), 2002, 31, 36-51.

Klonis, N., Wang, H., Quazi, N.H., Casey, J.L., Neumann, G., Deady, L.W. and Tilley, L. (2001) Characterisation of a Series of Far Red Absorbing Perylene Diones: A New Class of Fluorescent Probes for Biological Applications. *Journal of Fluorescence* 11, 1-11.

Date submitted: 13th September 2002

Ferenc G. Tölgyesi, Ph.D.

Dept. of Biophysics and Radiation Biology,
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www.biofiz.sote.hu

Specialty Keywords: Tryptophan phosphorescence.

Research interests: Protein structure and dynamics, their relation to function; small heat shock proteins; protein aggregation; effect of high pressure on proteins; luminescence spectroscopy, tryptophan phosphorescence, absorption spectroscopy.

Tölgyesi, F., Ullrich, B., Fidy J (1999) Tryptophan phosphorescence signals characteristic changes in protein dynamics at physiological temperatures *Biochim. Biophys. Acta*, **1435**, 1-6.
Ullrich B., Laberge M., Tölgyesi F., Szeltner Z., Polgár L., Fidy J. (2000) Trp 42 rotamers report reduced flexibility when the inhibitor acetyl pepstatin is bound to HIV -1 protease *Protein Science*. **9**, 1-14.

Date submitted: 25th September 2003

Dmitri Toptygin, Ph.D.



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Baltimore, Maryland, 21218, USA.
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DmitriToptygin@netscape.net

Specialty Keywords: Quantum Radiophysics in Discontinuous Media, Time-Resolved Fluorescence, Data Analysis.

Theory: the fundamental laws that determine the rates of absorption and emission of photons by fluorescent molecules in solutions, in liquid crystals, near interfaces, near or inside microscopic particles, and near other fluorescent molecules. Experiment: elimination of systematic errors in time-resolved fluorescence instrumentation, both time-correlated photon counting and frequency domain. Data analysis: efficient χ^2 minimization with hundreds of fitting parameters.

D. Toptygin, R. S. Savtchenko, N. D. Meadow, S. Roseman, L. Brand (2002). Effect of the solvent refractive index on the excited-state lifetime of a single tryptophan residue in a protein. *J. Phys. Chem. B* **106**, 3724-3734.

Date submitted: 22nd August 2003

John M. Torkelson, Ph.D.



Dept. of Chemical Engineering,
Department of Materials Science and Engineering,
Northwestern University, Evanston, IL 60208-3120,
United States of America.
Tel: 847 491 7449
j-torkelson@northwestern.edu

Specialty Keywords: Polymers, Sensors, Glass transition.

Fluorescence methods have been developed to address fundamental issues and applied problems in polymer science. These include the ability use ensemble and single-molecule fluorescence to quantify the effects of nanoscale confinement on the glass transition behavior, heterogeneous dynamics in polymers and nanocomposites, dye and polymer diffusion in polymers, conversion and block copolymer formation in reactive processing of polymers, and oxygen levels in pressure sensitive paints.

J. C. Quirin and J. M. Torkelson (2003). Self-referencing sensor for monitoring conversion of nonisothermal polymerization and nanoscale mixing of resin components *Polymer* **44**(2), 423-432.

Trevors, J. T.
Trinquet, E.

Date submitted: 11th February 2003

Jack T. Trevors, Ph.D.



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www.oac.uoguelph.ca/env/bio/trevors/htm

Specialty Keywords: Polarization, Bacteriology, Membrane fluidity.

Research is conducted on cytoplasmic membrane polarization in bacteria exposed to chemical pollutants, and often capable of metabolizing the pollutant. Fluorescent probes are also used for the detection of viable and non-viable bacterial cells in water, sediment and soil samples.

I. S. Kim, L. A. Beaudette, M.B. Cassidy, H. Lee and J. T. Trevors. (2001). Effect of 2, 2',5,5'-tetrachlorobiphenyl and biphenyl on membrane fluidity in *Ralstonia eutrophus* H850. FEMS Microbiol. Letts. **200**(1),17-24.

J. T. Trevors (2003). Fluorescent probes for bacterial cytoplasmic membrane research J. Biochem. Biohys. Meths. (in press).

Date submitted: 19th September 2002

Eric Trinquet, M.Sc.



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France.
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Specialty Keywords: Rare Earth Cryptates, FRET, Biomolecular Interactions.

Fields of interest: Research on Fluorescence based techniques for probe molecular interactions probing. Research on new methods based on the use of FRET combined with long lived fluorophores. Applications in High Troughtput Screening, Cellular Biology and Molecular Biology.

H. Bazin, E. Trinquet, G. Mathis (2002). Time Resolved Amplification of Cryptate Emission: a Versatile Technology to trace Biomolecular Interactions. Review in Molecular Biotechnology, **82**,233-250.

E. Trinquet, F. Maurin, M. Préaudat, G. Mathis (2001) Allophycocyanin 1 as a near infrared fluorescent tracer: isolation, characterization, chemical modification and use in homogeneous fluorescence resonance energy transfer system. Analytical Biochemistry, **296**, 232-244.

Date submitted: 28th August 2003

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Specialty Keywords: Polarised luminescence spectroscopy,
Fluorescent bioprobes, Membrane structure and dynamics.

Research fields: Probing protein and lipid membrane dynamics with time-resolved fluorescence, phosphorescence and T-T dichroism. Synthesis of new fluorescent labels and probes. Theory of rotational depolarisation of luminescence. Fundamental photochemistry: Triplet-triplet energy transfer and excited-state proton transfer. The history of solution fluorescence.

M.L.Ferrer, R.Duchowicz, B.Carrasco, J.Garcia de la Torre and A.U. Acuña (2001). The conformation of serum albumin in solution *Biophysical J.* **80**, 2422-2430.

E. Quesada, A.U. Acuña and F. Amat-Guerri (2001) New transmembrane polyene bolaamphiphiles as fluorescent probes in lipid bilayers *Angew, Chem. Int. Ed.* **40**, 2095-2097.

Date submitted: 29th August 2002

Evgenia Vaganova, Ph.D.



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Specialty Keywords: Photochemistry, Gel, Pyridine.

The mixture of Poly(4-vinyl pyridine)/pyridine is a novel photosensitive matter [1]. Depending on the irradiation wavelength different gel's structures are formed. Different emitting centers are in correlation with photoinduced structures. The photosensitivity of the composition is based on the formation of the two-molecular structure resulted from the interaction of self-protonated polymeric pyridinium ion with free pyridine. Open form photoproduct (irradiation at 250 nm), proton shuttle (irradiation at 380 nm) [2] are responsible for the different photoinduced gel's formation.

E. Vaganova, G. Meshulam, et. al (2000) *J.of Fluorescence* **10**, 81--89.

E. Vaganova, V. Hodorokovsky, L.Filatov, and S. Yitzchaik (2000) *Adv. Materials* **12**, 1679--1671.

Valenta, J.
Valeur, B.

Date submitted: 30th August 2002

Jan Valenta, Ph.D.

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Specialty Keywords: Single-nanocrystals, Luminescence.

Optical spectroscopy of individual low-dimensional semiconductor structures (nanocrystals - quantum dots) and biological complexes.

Linear and non-linear optical properties of semiconductors and insulators (pump-and-probe techniques, four-wave-mixing, transient and persistent spectral hole-burning and hole-filling).

J. Valenta, R. Juhasz, and J. Linnros: Optical spectroscopy of single silicon quantum dots (2002) *Appl. Phys. Lett.* **80** (6), 1070-1072.

J. Valenta, J. Dian, J. Hála, P. Gilliot, and R. Lévy: Persistent spectral hole-burning and hole-filling in CuBr semiconductor nanocrystals (1999) *J. Chem. Phys.* **111**, 9398-9405.

Date submitted: 2nd May 2002

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Specialty Keywords: Fluorescent molecular sensors, Excitation energy transfer Multichromophoric systems.

Current interests: Design of fluorescent molecular sensors for ion recognition (e.g. calixarene-based fluorescent sensors for the detection of alkali, alkaline-earth and heavy metal ions). Multichromophoric systems (e.g. antenna effect and energy hopping in multichromophoric cyclodextrins; multichromophoric calixarenes for ion detection; excitation energy transfer in porphyrin assemblies). Investigation of surfaces by fluorescence spectroscopy (e.g. characterization of the distribution of hydroxyl groups on alumina surfaces via excimer formation of grafted pyrene probes).

B. Valeur (2002). *Molecular Fluorescence. Principles and Applications*. Wiley-VCH, Weinheim.

B. Valeur and I. Leray (2000). Design principles of fluorescent molecular sensors for cation recognition, *Coord. Chem. Rev.* **205**, 3-40.

Date submitted: 3rd September 2002

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www.dnw.aero

Specialty Keywords: PSP, Decay, Intensity.

A single luminophor Rhutinium paint was developed to be able to measure the pressure at the surface of an aircraft model. The methods used for this technique were decay and intensity. The decay method still needs improvement. The intensity method is presently installed in the windtunnel.

Date submitted: 5th August 2003

Lambertus K. van Geest, M.Sc.



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Specialty Keywords: Fluorescence Lifetime Imaging
Microscopy, Image Intensifiers, ICCD Cameras.

Development of imaging and detection systems for fluorescence microscopy often making use of image intensifiers which are fully digitally controlled and can be gated or modulated. The intensifier is coupled to the image sensor of the camera by using a fiber optics image guide (taper) or a relay lens. Ongoing research that is aimed at the improvement of the instrument for Fluorescence Lifetime Imaging Microscopy (FLIM) and the application of LED's as modulated light source in such a system.

Van Houten, K. A.
vandeVen, M. J.

Date submitted: 28th August 2002



Kelly A. Van Houten, Ph.D.

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Germantown, MD 20874,
USA.

Tel: (301) 515 7260 Fax: (301) 515 0988
kvanh@s4ms.com
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Specialty Keywords: Glucose sensor, Dual-emitter, Oxygen sensor.

Currently, I am working on a fluorescence-based sensor for continuous in-vivo glucose monitoring. My interests involve the design of novel dual-emitting metal complexes as sensors and probes.

Van Houten, K.A.; Pilato, R.S. (1999) in K.S. Schanze; V. Ramamurthy (Eds.) *Molecular and Supramolecular Photochemistry: Multimetallic and Macromolecular Inorganic Chemistry*, Marcel Dekker Inc., New York, pp. 185-214.

Van Houten, K.A.; Heath, D.C.; Pilato, R.S. (1998) *J. Am. Chem. Soc.* **120**, 12359.

Date submitted: 29th August 2002



Martin J. vandeVen, Ph.D.

Department MBW, Biomedical Research Institute (BIOMED) /
Institute of Materials Research (IMO),
Limburg University Center (LUC), Bldg D / Trans National,
University Limburg (tUL), University Campus,
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www.luc.ac.be/engels/ & www.tul.edu

Specialty Keywords: Spectrofluorimetry, Microscopy, Image analysis.

Collaborative research centers on (1) fluorescence imaging microscopy of cellular interactions in autoimmune diseases Multiple Sclerosis (MS) and Rheumatoid Arthritis (RA) (2) polymer fluorescence characterization for biosensors (3) Chlorophyll and GFP fluorescence imaging related to leaf and fruit physiology (4) application of neural networks in image analysis (5) development of laser-based time- and frequency domain fluorescence methodologies at the LUC Biomed fluorescence Center.

Using fluorescence images in classification of apples. Codrea, M.; Tyystjärvi, E.; vandeVen, M.; Valcke, R. and Nevalainen, O.; IASTED-VIIP Benalmadena, Malaga, Spain Sept. 9-12 2002.

Date submitted: 5th May 2002

Wilfried G.J.H.M. Van Sark, Ph.D.



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Specialty Keywords: Single molecule imaging / spectroscopy,
Quantum dots.

Initiate, coordinate and perform scientific research in the field of fast fluorescent imaging and spectroscopy of (single) semiconductor quantum dots, colloidal systems, and organic molecules. This includes bioconjugation and application in (artificial) membrane systems.

W. G. J. H. M. Van Sark, et al. (2002). Time-Resolved Fluorescence Spectroscopy Study on the PhotoPhysical Behaviour of Quantum Dots *J. Fluoresc.* **12**, 69-76.

W. G. J. H. M. Van Sark, et al. (2001). Photo-oxidation and Photobleaching of Single CdSe/ZnS Quantum Dots probed by Room-Temperature Time-Resolved Spectroscopy *J. Phys. Chem. B* **105**, 8281-8284.

Date submitted: 16th September 2003

Antonio Varriale, (Ph.D. Student)



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Specialty Keywords: Analyte-binding proteins Biosensor,
Fluorescence.

My Ph.D thesis deals with the realization of a biosensor for the patients with autoimmunity disease. In particular, I am involved in a project for the development of a fluorescence-based nanodevice for the follow-up of coeliac patients.

My primary goal is to contribute to the realization of new fluorescence protein-sensors for analytes of high social interest.

Date submitted: 21st August 2002

David Vaudry, Ph.D.



European Institute for Peptide Research (IFRMP 23),
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David.vaudry@univ-rouen.fr
www.univ-rouen.fr/inserm-u413/microscopie.htm

Specialty Keywords: Confocal microscopy, Microarray, Q-RT-PCR & Microplate reader.

We are studying the molecular and cellular mechanisms involved in the neurotrophic and antiapoptotic activities of the neuropeptide PACAP. The genes regulations and functions are investigated using the microarray, Q-RT-PCR or siRNA techniques. The protein levels and activities are measured by calcium imaging, western blotting or enzyme kinetics.

D. Vaudry et al. (2002) Pituitary adenylate cyclase-activating polypeptide protects rat cerebellar granule neurons against ethanol-induced apoptotic cell death. *Proc. Natl. Acad. Sci. USA* **99**: 6398-6403.

D. Vaudry et al. (in press) Analysis of the PC12 cell transcriptome after differentiation with pituitary adenylate cyclase-activating polypeptide (PACAP) *J. Neurochem.*

Date submitted: 9th September 2002

Jose Luis Vazquez-Ibar, Ph.D.



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Microbiology & Molecular Genetics, Molecular Biology Inst.,
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Specialty Keywords: FRET, Lanthanide luminescence, Protein engineering.

Research focused on: study of structure and dynamics of membrane proteins by combining protein engineering and fluorescence techniques. In particular, we have developed a new approach to perform FRET measurements in an integral membrane protein using the luminescence of a lanthanide atom as energy donor. We created a terbium binding site in the middle cytoplasmic loop of lactose permease of *E. coli* (LacY) by engineering a Ca²⁺ coordinating sequence (EF-hand motif) with altered specificity for terbium.

Vazquez-Ibar JL., Weinglass, A.B. & Kaback, H. R. (2002) *Proc Natl Acad Sci USA* **99**, 3487-3492.

Date submitted: 23rd August 2003

Nikolai L. Vekshin, Ph.D.



Institute of Cell Biophysics,
Institutskaya street-3, Pushchino,
Moscow region, 142290,
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photonics.narod.ru

Specialty Keywords: Photonics, Biophysics, Spectroscopy.

Nikolai Vekshin has 5 books, 2 patents (multipass cuvettes for fluorescence) and many papers in international journals. His scientific interest is photophysics and spectroscopy of biopolymers. He uses: Steady-state, synchronuous, polarization and time-resolved fluorescence methods, phosphorescence, IR spectroscopy, luminescence microscopy, etc. He developed a number of new methodical approaches for high-sensitive detection and investigations of proteins, nucleic acids and membranes. The main part of his job was concerned with fluorescence energy transfer. His work was supported by RFFI, NWO, NATO, FEBS, NSF, CRDF, and so on. Vekshin N.L. Energy Transfer in Macromolecules. Bellingham, SPIE, 1997. Vekshin N.L Photonics of Biopolymers. Springer, 2002.

Date submitted: 4th July 2002

Rance A. Velapoldi, Ph.D.

Nygaardskogen 28,
N-3408 Tranby,
Norway,

Tel: 0473 285 3445
velapoldi@netcom.no

Specialty Keywords: Fluorescence standards, Corrected spectra, Quantum yields.

In late 60's and 70's, performed extensive research on organic species in solution and inorganic ion-doped glasses for use as macro- and micro-luminescence standards in addition to some analytical applications of fluorescence at the National Bureau of Standards, Washington, DC. (now NIST). Retired from NIST in 1999 but continuing research on standards and luminescence at the Pharmacy Institute, University of Oslo, Blindern, Norway.

R.A. Velapoldi and K.D. Mielenz, NBS Special Publication 260-64, US Department of Commerce, Washington, DC. 1980.

R.A. Velapoldi and M.S. Epstein, Luminescence Standards for Macro- and Microspectrofluorimetry; in "Luminescence Applications" M.C. Goldberg, Ed. ACS Symposium Series, 383, pp 98-126 (1989), Washington, DC.

Date submitted: 29th August 2002

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Specialty Keywords: Laser induced and high-resolution molecular fluorescence.

The research has been directed on the potential of laser-induced fluorescence detection coupled to CE and LC and on the development and application of Shpol'skii Spectroscopy and Fluorescence Line Narrowing Spectroscopy for identification in analytical and environmental analysis, in particular applied on polycyclic aromatic hydrocarbons and their metabolites.

O.F.A. Larsen, I.S. Kozin, A.M. Rijs, G.J. Stroomberg, J.A. de Knecht, N.H. Velthorst and C. Gooijer: Direct identification of pyrene metabolites in organs of the isopod *Porcellio scaber* by Fluorescence Line Narrowing Spectroscopy. *Anal. Chem.* 70, 1182-1185 (1998).

Date submitted: 30th August 2002

Mariano Venanzi, Ph.D.



Department of Chemical Sciences and Technologies,
University of Roma Tor Vergata,
Via della ricerca scientifica, 00133, Roma,
Italy.
Tel: +39 067 259 4468 Fax: +39 067 259 4328
venanzi@uniroma2.it

Specialty Keywords: Biospectroscopy, Energy / electron transfer, Peptide structure.

My research activity focusses on the application of fluorescence spectroscopy and other photophysical techniques in the study of energy/electron flow in peptides and molecules of biological interest. Current research projects: Structure of peptide foldamers; design and characterization of peptide-based molecular devices for memories, switches and energy conversion; energy/electron transfer in porphyrin dimers and dendrimers; photocatalysis in micelles and organized environments.

(2002) Structural features and conformational equilibria of 3₁₀-helical peptides in solution by spectroscopic and molecular mechanics studies *Biopolymers(Biospectroscopy)* **67**, 247-250.

(2002) Effects of helical distortions on the optical properties of amide NH infrared absorption in short peptides in solution. *J. Phys. Chem. B* **106**, 5733-5738.

Date submitted: 29th July 2002

Jo Vercammen, Ph.D.



Biochemistry, K.U. Leuven,
Celestijnenlaan,
Heverlee, 3001,
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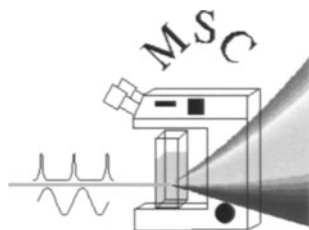
Tel: 00 321 632 7132 Fax: 00 321 632 7982
Jo.Vercammen@fys.kuleuven.ac.be

Specialty Keywords: HIV-1 integrase, Fluorescence Correlation Spectroscopy, Fluorescence Fluctuation Analysis.

The Laboratory of Biomolecular Dynamics is equipped with an FCS instrument and within this project this technique will be developed for the study of the enzyme integrase. HIV-1 integrase is a lentiviral protein and is regarded as one of the potential candidates for developing antiviral drugs, next to reverse transcriptase and protease. The study of the mechanism of the integrase reaction may also contribute to the further development of gene therapy using lentiviral vectors. The enzymatic activities of HIV-1 integrase will be studied as well as the multimerisation.

Date submitted: 25th August 2002

Antonie J. W. G. Visser, Ph.D.



MicroSpectroscopy Centre, Wageningen University,
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Specialty Keywords: Flavoproteins, Fluorescence fluctuations, Time-resolved fluorescence.

The mission of our MicroSpectroscopy Centre is to strengthen the Dutch infrastructure in optical microspectroscopy, in particular fluorescence. We offer universities, research institutes and industrial companies microspectroscopic state-of-the-art facilities in which biomolecular interactions can be studied such as those among proteins, carbohydrates, lipids, nucleic acids, metabolites, either in isolated form or within cells. Current research is focused on: signal transduction in plants; characterization of plant pathogen resistance genes; gene display technology with high throughput screening; redox biochemistry in complex media and characterization of mesoscopic systems in food sciences.

Structural dynamics of green fluorescent protein alone and fused with a single chain Fv protein. M.A. Hink, R.A. Griep, J.W. Borst, A. van Hoek, M.H.M. Eppink, A. Schots and A.J.W.G. Visser (2000) J. Biol. Chem. 275, 17556-17560.

Vladkova, R. S.
Vöhringer, P.

Date submitted: 23rd August 2002

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Specialty Keywords: Chlorophylls, Membranes, Fluorescent probes.

Intermolecular interactions, organization and dynamics of both the fluorescing molecules (e.g. Chlorophylls, 1,8-ANS) and the medium where they are imbedded (solvents, mixtures, low-temperature matrices, membrane lipid-water structures, and photosynthetic membranes) by using the full arsenal of fluorescence characteristics estimated from steady-state and time-resolved emission spectroscopy, as well as those from hole-burning and site-selection spectroscopy.

R. Vladkova (2000). Chlorophyll *a* self-assembly in polar solvent-water mixtures. *Photochem. Photobiol.*, **71**(1), 71-83.

R. Vladkova, K. Teuchner, D. Leupold, R. Koynova and B. Tenchov (2000). Detection of the metastable rippled gel phase in hydrated phosphatidylcholine by fluorescence spectroscopy. *Biophys. Chem.*, **84**(2), 159-166.

Date submitted: 20th August 2002

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Specialty Keywords: Femtosecond spectroscopy, Condensed matter.

Current interests: Dynamics of structural relaxations in biological environments. Ultrafast primary events involved in bioluminescence. Proton, electron, and energy transfer in condensed phase systems. Coherence in liquid phase chemical reactions. Molecular dynamics of liquids.

K. Winkler, J. Lindner, and P. Vöhringer (2002) Low-frequency depolarized Raman-spectral density from femtosecond optical Kerr-effect experiments: Lineshape analysis of restricted translational modes, *Phys. Chem. Chem. Phys.* **4**, 2144-2155.

K. Winkler, J. Lindner, V. Subramaniam, T.M. Jovin, and P. Vöhringer (2002) Ultrafast dynamics in the excited state of green fluorescent protein (wt) studied by frequency-resolved femtosecond pump-probe spectroscopy, *Phys. Chem. Chem. Phys.* **4**, 1072-1081 (2002).

Date submitted: 29th July 2003

Anna von Mikecz, Ph.D.



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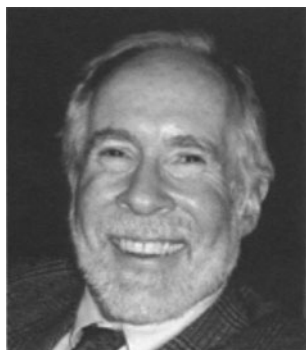
Specialty Keywords: Cell nucleus, Confocal microscopy,
Subnuclear pathology of disease.

The mammalian cell nucleus is composed of dynamic subnuclear compartments that form in response to gene expression (→ form follows function). Disruption of nuclear function by xenobiotics such as heavy metals and nanoparticles results in altered proteasomal degradation and protein aggregation within the nucleus. These subnuclear pathologies occur in cellular senescence, neurodegenerative diseases and systemic autoimmune disorders, and can be visualized by confocal laser scanning microscopy.

von Mikecz, A. and P. Hemmerich. Subnuclear pathology. in *Visions of the Nucleus - Eukaryotic DNA*, P. Hemmerich & S. Diekmann (eds), American Scientific Publishers, Stevenson Ranch, CA, USA (2003).

Date submitted: 29th July 2003

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Specialty Keywords: Fluorescence, Probes, Microscope
imaging.

Development and application of fluorescence technologies in basic biological research, biotechnology, and medical diagnostics. This work includes new multicolor fluorescent labeling reagents, multi-parameter fluorescent antibodies, DNA probes, physiological indicators, molecular biosensors and associated fluorescence imaging systems.

Zhu Z, Waggoner AS. Incorporation of cyanine modified nucleotides into DNA by PCR. *Cytometry*, 28:206-211 (1997).

Randolph JR, Waggoner, AS. Stability, specificity and fluorescence brightness of multiply-labeled DNA probes. *Nucl. Acids Res.* 25:2923-2929 (1997).

Wahl, M.
Ward, W. W.

Date submitted: 28th August 2003

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Germany.

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www.picoquant.com

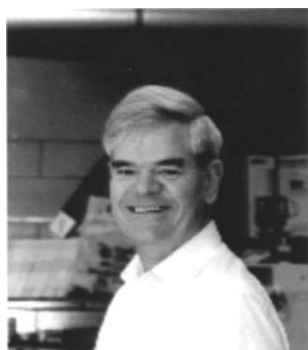
Specialty Keywords: Time-correlated photon counting, Time-resolved fluorescence, FCS, Single molecule detection.

M.W. is working as a senior scientist and project leader at PicoQuant GmbH. His research focuses on the development of instrumentation and data analysis software for time-correlated single photon counting. These instruments are applied in ultra-sensitive analysis down to the single molecule level. Recent projects include data acquisition systems for time-resolved fluorescence microscopy and advanced data analysis algorithms for fluorescence correlation spectroscopy and fluorescence lifetime imaging.

Wahl M.; Rahn H.J.; Ortmann U.; Erdmann R.; Böhmer M.; Enderlein J. "Fluorescence lifetime imaging system with nm-resolution and single-molecule sensitivity" *Proc. SPIE* vol. 4634, 104-11 (2002).

Date submitted: 18th October 2003

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/www.rci.rutgers.edu/~meton/protein.html

Specialty Keywords: GFP, Bioluminescence, Proteins.

Professor Ward specializes in physical and chemical properties of green-fluorescent protein (GFP). He teaches a GFP-based short course in protein purification at his center (CREBB) and has organized GFP symposia in 1997, 1999, and 2004. He also teaches "Fluorescence: Basic Principles and Applications in Drug Discovery" for IBC. He has published more than 100 refereed papers, book chapters, and abstracts and has one issued patent and one pending on HTS of cell-based GFP.

H.A.Richards, C-T.Han, R.G.Hopkins, M.L.Failla, W.W.Ward, and C.N.Stewart(2003), Safety Assessment of Recombinant Green Fluorescent Protein Orally Administered to Weaned Rats, *J.Nutr.*, 133:1909-1912.

Date submitted: 28th August 2002

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Specialty Keywords: Free radicals, Oxidative stress, Radiation chemistry.

My interests focus on the roles of free radicals in cancer biology, particularly the chemistry of cellular oxidative stress and the detection of free radicals or their products in biological systems. Radiation-produced free radicals are of special interest, as are the kinetics of radical reactions. Pulse radiolysis, stopped-flow rapid-mixing and EPR are to characterize reaction kinetics. The chemistry of fluorescent probes that are putative 'reporters' of oxidative and nitrosative stress is of current interest.

Wardman, P., *et al.*, 2002, Pitfalls in the use of common luminescent probes for oxidative and nitrosative stress. *Journal of Fluorescence*, **12**, 65-68.

Ford, E., *et al.*, 2002, Kinetics of the reactions of nitrogen dioxide with glutathione, cysteine, and uric acid at physiological pH. *Free Radical Biology & Medicine*, **32**, 1314-1323.

Date submitted: 4th September 2002

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www.aep.cornell.edu/drbio

Specialty Keywords: Biophysics, Biomedical, Optics.

The aim of our research is to understand, at the molecular level, the dynamics of basic biophysical processes. The continual challenge is to detect the exquisite subtlety of biomolecular signals and to broaden the paradigms of physical science to encompass biological complexity. The creation of new physical instrumentations addresses this challenge. We study the dynamics of biophysical processes in living cells using modern physical optics such as fluorescence correlation spectroscopy and nonlinear laser scanning microscopy.

Magde, D., Webb, W. W. & Elson, E. Thermodynamic Fluctuations in a Reacting System - Measurement by Fluorescence Correlation Spectroscopy. *Physical Rev Lett* **29**, 705-708 (1972).

Denk, W., Strickler, J. H. & Webb, W. W. Two-Photon Laser Scanning Fluorescence Microscopy. *Science* **248**, 73-76 (1990).

**Westman, G.
Widengren, J.**

Date submitted: 29th August 2002

Gunnar Westman, Ph.D.



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Chalmers University of Technology,
S-412 96 Gothenburg,
Sweden.
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Specialty Keywords: Synthesis, Cyanine dyes,
Benzophenoxazine.

Current interests: Design and synthesis of new fluorescent molecules for the detection and studies of biological systems. Currently we design fluorescent probes that bind in the minor groove of nucleic acids. We also develop fluorescent dyes that show specific staining of cells.

Svanvik, N., Westman, G., Wang, D. and Kubista M. Anal. Biochem. 281, 26-35 (2000).

Isacsson J and Westman G Tet. Lett. 42, 3207-3210 (2001).

Date submitted: 30th August 2002

Jerker Widengren, Ph.D., M.D.



Dept. Medical Biophysics, MBB,
Scheeles v. 2, Karolinska Institutet,
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Sweden.
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Specialty Keywords: FCS, Single Molecule Spectroscopy.

Current research: Development of techniques and applications of Fluorescence Correlation Spectroscopy (FCS) and single molecule Multi-parameter Fluorescence Detection (smMFD). Monitoring and characterization of transient photophysical states, conformations and conformational fluctuations of biomolecules. Detection, characterization and diagnostics of sparse amounts of biomolecules on cell surfaces and in body fluids.

Widengren J, Schweinberger E, Berger S, and Seidel C: J. Phys. Chem., 105, 6851-6866, 2001.
Widengren J, Mets, Ü: Conceptual basis of FCS and related techniques as tools in bioscience p. 69-119, in Single Molecule Detection in Solution, Eds. Zander, Enderlein, Keller, Wiley VCH 2002.

Date submitted: 11th September 2002

Gert J. Wilgenhof, Ing.



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Postbus 250, 4600 AG,
The Netherlands.
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Gert.Wilgenhof@Varianinc.com
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Specialty Keywords: Fluorometer, Spectrofluorometer,
Applications.

Varian offers high quality products for measuring fluorescence in many applications. Especially the Cary Eclipse fluorometer offers every wavelength for analyzing fluorescence, phosphorescence and chemi-luminescence with excitation and emission scans as well as 2D / 3D plots. Temperature control, polarization, fiber optic and wellplate options are available. With the instrument knowledge Varian participates in research projects and helps with developing new applications. The Varian office in Bergen op Zoom is equipped with all the necessary tools to make your fluorescent application work.

Please contact: Gert Wilgenhof – Cary Eclipse specialist The Netherlands.

Date submitted: 29th August 2003

Gerald M. Wilson, Ph.D.



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gwils001@umaryland.edu

Specialty Keywords: RNA biology, RNA folding, FRET.

My principal research foci concern trans-acting factors contributing to the regulation of messenger RNA turnover and the roles of RNA conformational heterogeneity in modulating association and function of these factors. To these ends, we employ fluorescence anisotropy and resonance energy transfer to evaluate RNA-protein binding and RNA folding events under solution conditions.

Wilson, G.M., Lu, J., Sutphen, K., Suarez, Y., Sinha, S., Brewer, B., Villanueva-Feliciano, E.C., Ysla, R.M., Charles, S., and Brewer, G. (2003) *J. Biol. Chem.*, **278**, 33039-33048.
Wilson, G.M., Sutphen, K., Moutafis, M., Sinha, S., and Brewer, G. (2001) *J. Biol. Chem.* **276**, 38400-38409.

Date submitted: 6th August 2002

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Stuart.Windsor@npl.co.uk
www.npl.co.uk/biotech

Specialty Keywords: Fluorescence standards, Quantum dots,
Biological fluorescence, FCS, Multiparameter fluorescence.

Current Research Interests: My research is focused on the validation and standardization of fluorescence based techniques (particularly those used in the bioscience), and the development of new biological characterization methods based on fluorescence measurement. Current active research includes the development of quantum dot fluorescence standards; the use of multiparameter fluorescence measurements for biopharmaceutical characterization; the validation of high-throughput fluorescence measurement methods; and the development of single molecule structural characterization methods based on fluorescence correlation spectroscopy. I work closely with industry and academia, and have recently initiated a major consortium (BEACON) to improve biopharmaceutical characterization methods (incl. fluorescence) used in regulation.

Date submitted: 7th March 2002

Otto S. Wolfbeis, Ph.D.



Professor of Analytical & Interface Chemistry,
University of Regensburg,
Institute of Analytical Chemistry, Chemo - and Biosensors,
93040 Regensburg,
Germany.

Specialty Keywords: Chemical sensors, Biosensors,
Fluorescentprobes, Interface chemistry, Bioassays,
Nanoparticles.

Current Research: (Fiber) optic chemical sensors and planar
sensors for blood gases and blood electrolytes, enzyme based

biosensors for glucose, lactate and urea; fluorescent probes for immunoassay via FRET and PRET; decay time based biosassays; beads as labels for proteins and polynucleotides; multiplexing of bead arrays via lifetime and color (arrays); self-assembled monolayers on gold films; biosensor arrays using gold films; molecular imprints and footprints.

New Type of Phosphorescent Nanospheres for Use in Advanced Time-Resolved Multiplexed Bioassays, J. M. Kuerner, I. Klimant, Ch. Krause, E. Pringsheim & O. S. Wolfbeis, *Anal. Biochem.* **297** (2001) 32-41.

Novel Diode Laser-Compatible Fluorophores and Their Application to Single Molecule Detection, Protein Labeling and Fluorescence Resonance Energy Transfer Immunoassay", B. Oswald, M. Gruber & O. S. Wolfbeis, *Photochem. Photobiol.* **74** (2001) 237-242.

Date submitted: 16th September 2002

Danuta Wróbel, Ph.D.



Institute of Physics, Poznan University of Technology,
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Poland.

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Specialty Keywords: Molecular Physics, Molecular Spectroscopy, Organic dyes.

The study of spectral properties of synthetic organic dyes and chlorophyll pigments in isotropic and anisotropic media to follow: Mechanisms of radiative and non-deactivation processes of porphyrins and phthalocyanines, of porphyrin-melanin systems, mechanisms of generation of the photovoltaic effects in photoelectrochemical cells based on synthetic organic dyes and biological materials, Langmuir-Blodgett layers, optical and IR studies, organic photovoltaics, photodynamic therapy.

D.Wróbel, *et al.*, Fluorescence and time-resolved delayed luminescence of porphyrins in organic solvents and polymer matrices, *J.Fluorescence*, 8 (1998) 191-198.

A.Boguta, D.Wróbel, Fluorescein and phenolphthalein-Correlation of fluorescence and photovoltaic properties, *J. Fluorescence*, 11 (2001), 131-139.

Date submitted: 29th August 2003

Meng Wu, Ph.D.



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Regensburg, 93040,
Germany.

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Specialty Keywords: Lifetime, Lanthanide, Imaging.

Generally my main research interests are on the fluorescence detections as well as their possible biomedical and clinical applications. Fluorescent probes, fluorescent assays and imaging, and the constructions of biosensors and arrays have been covered. The current research is focused on the latest development of lifetime-based fluorescent technologies for assays, imaging and arrays, such as those for lanthanide probes.

O. S. Wolfbeis, A. Duerkop, Meng Wu, Zhihong Lin, (2002). A Europium-ion-based luminescent sensing probe for hydrogen peroxide. *Angew. Chem., Int. Ed.* 41(23), 4495-4498.

Meng Wu, Zhihong Lin, O. S. Wolfbeis, (2003). Determination of the Activity of Catalase Using a Europium(III)-tetracycline Derived Fluorescent Substrate *Anal. Biochem.*, 320, 129-135.

Yao-Qun, L.
Yarmoluk, S. M.

Date submitted: 15th August 2003



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Specialty Keywords: Fluorescence, Multi-component analysis.

The research fields include molecular fluorescence spectroscopy and its application in environmental and biological analysis, multi-component analysis, and surface analysis. Special interests have focused on the development, instrumentation and application of some fluorescence techniques, such as synchronous fluorescence spectroscopy, multi-dimensional fluorescence, derivative technique, reflection fluorescence and confocal microscopy.

Derivative matrix isopotential synchronous fluorescence spectroscopy for the direct determination of 1-hydroxypyrene as a urinary biomarker of exposure to polycyclic aromatic hydrocarbon, with Wei Sui, Chun Wu, Li-Jun Yu, *Anal Sci.*, **2001**, 17(1),167.

Spectral fluctuation and heterogeneous distribution of porphine on the water surface, with Maxim. N. Slyadnev, Takanori Inoue, Akira Harata and Teiichiro Ogawa, *Langmuir*, **1999**, 15(9), 3035.

Date submitted: 29th August 2003



Sergiy M. Yarmoluk, Ph.D.

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Specialty Keywords: DNA, protein, fluorescent probes, cyanine dyes, fluorescent detection.

The research interests of Dr. Yarmoluk are connected with fluorescent detection of biological molecules. In the department of combinatorial chemistry of biological active compounds guided by Dr. Yarmoluk the series of novel dyes promising for use as fluorescent probes for nucleic acids and proteins detection were created, and novel methods for biomolecules labeling with cyanine dyes were developed [1]. Also mechanisms of interaction of the dyes with nucleic acids and photophysical properties of the dyes are studied [2].

S. Y. Dmitrieva, O. M. Kostenko, O. I. Tolmachev, S. M. Yarmoluk (2002) *Journal of Fluorescence*, **12**, 2, pp.173-175.

Ref 2: V. B. Kovalska, I. V. Valyukh, S. S. Lukashov, Yu. L. Slominskii and S. M. Yarmoluk (2002) *Journal of Fluorescence*, **12**, 2, pp.209-212.

Date submitted: 22nd August 2002

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Specialty Keywords: Single Molecule Fluorescence,
Fluorescence Resonance Energy Transfer (FRET).

My research focuses on applying single molecule fluorescence spectroscopy, especially single molecule FRET and FRET correlation spectroscopy to study structural heterogeneity and conformational dynamics of biomolecules including DNA hairpins and G-quadruplexes. I am also developing novel fluorescence methods such as single molecule fluorescence coincidence to detect the interaction of proteins with nucleic acids. My current projects aim to tackle the structure and mechanism of DNA polymerase and telomerase at the single molecule level.

Wallace M. I., Ying L. M., Balasubramanian S., Klenerman D. Non-Arrhenius Kinetics for the Loop Closure of a DNA Hairpin, *Proc. Natl. Acad. Sci. USA*, **98**, 5584 (2001).

Ying L. M., Xie X. S., Fluorescence Spectroscopy, Exciton Dynamics, and Photochemistry of Single Allophycocyanin Trimers, *J. Phys. Chem. B* **102**, 10399 (1998).

Date submitted: 31st May 2002

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Organic Chemistry, Molecular Probes Inc.,
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Specialty Keywords: Fluorescence.

Earned Ph.D. in Organic Chemistry from Oregon State University (1982). Principal Scientist at Molecular Probes, Inc. and Inventor of SYBR series nucleic acid stains and some NIR Alexa Fluor dyes. Other activities are in development of new fluorescent dyes.

Zander, C. C. Z.
Zhang, J.

Date submitted: 3rd September 2002

Christoph C. Z. Zander, Ph.D.



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Specialty Keywords: Laser cooling, Single molecule detection,
Anti Stokes fluorescence.

My group is working since 1991 in the field of fluorescence. The mayor topics of this works are laser cooling by anti Stokes fluorescence (see ref. 1) and single molecule detection (see ref. 1).

Cooling of a Dye Solution by Anti-Stokes Fluorescence, C. Zander, K.H. Drexhage, *Advances in Photochemistry*, Volume 20, John Wiley & Sons (1995) 59.

Single Molecule-Detection in Solution: Methods and Applications, eds. Ch. Zander. J. Enderlein, R.A. Keller, Wiley-VCH Verlag Berlin GmbH, S. 247 – 272, Berlin 2002.

Date submitted: 7th March 2003

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Specialty Keywords: Surface Chemistry, Biosensor,
Fluorescence.

My research focused on nano-scale materials design and construction for biological detection including carbohydrate and DNA, etc., using absorbance and luminescence spectral changes and electrochemical behaviors.

G. Wang, J. Zhang, R. W. Murray (2002). DNA Binding of an Ethidium Intercalator Attached to a Monolayer-Protected Gold Cluster: *Anal. Chem.*, **74**(17), 4320-4327.

J. Zhang, J. K. Whitesell, M. A. Fox (2003). Photophysical Behavior of Various Sized Colloidal Gold Clusters Capped with Monolayers of an Alkylstilbenethiolate: *Phys. Chem. B.*, **107**(25), 6051-6055.

Date submitted: 30th August 2002

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Specialty Keywords: Patch-clamp fluorometry, Ion channel,
Membrane protein, FRET.

My research has been focused on applying fluorescence techniques to the study of membrane protein dynamics. Through a combination of classic patch-clamp current recordings and site-specific fluorescence recordings, the conformational rearrangements of ion channels are monitored and related to the functional states of these membrane proteins. Currently I am using FRET to study gating and modulation of the cyclic nucleotide-gated channels that mediate sensory transduction of both visual and olfactory systems.

J. Zheng, and W.N. Zagotta (2000) Gating rearrangements in cyclic nucleotide-gated channels revealed by patch-clamp fluorometry, *Neuron*, **28**, 369-374.

Date submitted: 4th September 2002

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Specialty Keywords: Fluorescence, Fluorescent organic dyes,
Biolabeling, Bioanalytics, Photofading, UV-absorber.

My research interests are based on the design and synthesis of novel fluorescent dyes. Individual functionalisation of these dyes make them highly suitable for bioanalytical applications e.g. biolabeling of nucleotides, proteins, etc.

I am further interested in the development and investigation of detergent additives to prevent photodegradation of dyed fabrics in particular cellulosic based fibers e.g. cotton.

J. Arden-Jacob, J. Frantzeskos, N. U. Kemnitzer, A. Zilles, K. H. Drexhage, *Spectrochim. Acta*, **57A**, 2271-2283 (2001). A. Zilles, PhD Theses "*The design and synthesis of detergent additives for the photo-chemical protection of dyed fabrics.*" University of Leeds, Department of Colour Chemistry (2002).

Date submitted: 30th August 2002

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Specialty Keywords: Fluorometry, Dye-Nucleic acid complexes,
Dye-oligonucleotide conjugates.

Investigation of fluorescent and binding properties of intercalating dyes and drugs in complexes with polynucleotides and nucleic acids. Utilization of covalently attached dyes as fluorescent probes and stabilizers of antisense and antigene oligonucleotide hybridization.

Victor Zozulya (1999) Fluorescence properties of intercalating neutral chromophores in complexes with polynucleotides of various base compositions and secondary structures. *J. Fluorescence* 9, 363 - 366.

V. Zozulya, A. Shcherbakova and I. Dubey (2000) Calculating helix-to-coil transitions of duplexes formed by phenazine-conjugated oligonucleotide, using fluorescence melting data. *J. Fluorescence* 10, 49 - 53.

2004



***Companies in
Fluorescence***

Company Entries

Avanti Polar Lipids Inc.	<i>Alabama, USA.</i>	184
Boston Electronics Corporation	<i>Massachusetts, USA.</i>	185
Carl Zeiss MicroImaging Inc.	<i>New York, USA.</i>	186
Chroma Technology Corp.	<i>Vermont, USA.</i>	187
ISS	<i>Champaign, USA.</i>	188
Lambert Instruments	<i>The Netherlands.</i>	189
LaVision GmbH.	<i>Goettingen, Germany.</i>	190
Ocean Optics B.V.	<i>The Netherlands.</i>	191
Olis Inc.	<i>Georgia, USA.</i>	192
Photon Technology International Inc.	<i>New Jersey, USA.</i>	193
PicoQuant	<i>Berlin, Germany.</i>	194
Tecan	<i>Salzburg, Austria.</i>	195
TEF Labs Inc.	<i>Texas, USA.</i>	196
Thermo Electron Corp	<i>Wisconsin, USA.</i>	197
Varian Inc.	<i>California, USA.</i>	198
Instructions for Contributors 2005		199
Personal Template		200
Company and Institution Template		201

Avanti Polar Lipids Inc.

700 Industrial Park Drive
Alabama, 35007-9105, USA.
Tel: (800) 227 0651, (205) 663 2494
Fax: (800) 229 1004, (205) 663 0756
Email: info@avantilipids.com
URL: www.avantilipids.com

Specialty Keywords: **Lipid, Phospholipid, Sphingolipid.**

Fluorescent Sphingolipids, now in stock: **Safingol, L-threo-Sphingosine, Glucosyl Sphingosine, Galactosyl Sphingosine, Lactosyl Sphingosine, Ceramide, Sphingomyelin, Acyl Sphinganine** (all available C6 & C12), plus **Sphingosine, S-1-P, and Ganglioside.**

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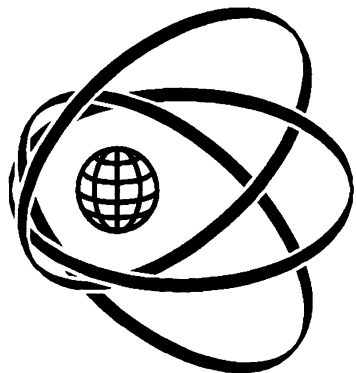
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CERAMIDE DERIVATIVES – PHOSPHORYLATED	CEREBROSIDES
CONJUGATION OF PROTEINS, PEPTIDES & DRUGS TO LIPOSOMES	DEUTERIUM LABELED LIPIDS
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GLYCEROL BASED LIPIDS	FUNCTIONALIZED PEG-LIPIDS
LANTHANIDE CHELATING LIPIDS	GANGLIOSIDES
LIPID MIXTURES (FOR CELL CULTURE & CLINICAL APPLICATIONS)	GLYCOLIPIDS
LYSOPHOSPHATIDIC ACID	LIPID A (HIGH PURITY)
NATURAL & SYNTHETIC LIPIDS	LIPOSOMES
OXY-STEROLS	LIPOTRANSFER
PEG-LIPIDS	MALEIMIDE-CONTAINING LIPIDS
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Specialty Keywords: **TCSPC, Single Photon Detectors, FLIM, FRET, FCS.**



Boston Electronics Corporation are technical sales agents and distributors in North America for leading manufacturers of advanced fluorescence-related measurement equipment including Becker & Hickl GmbH of Germany, Edinburgh Instruments Ltd. Of Scotland and Hamamatsu of Japan.

The company was founded in 1977 and has 6 employees currently. Besides our fluorescence-related activities on behalf of Becker & Hickl, Edinburgh Instruments and Hamamatsu, we are more generally technical specialists in photodetection, signal processing for photodetection, and infrared light sources related to photodetector-based sensors. We also represent Vigo System of Poland for advanced IR detectors, Alpes Lasers of Switzerland for tunable IR Quantum Cascade Lasers, and Scitec Instruments Ltd of England for choppers and lock in amplifiers.

You can meet us in person most years at these exhibitions:

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- CLEO, the Conference on Lasers and Electro Optics (OSA)
- Photonics East (SPIE)
- Biomedical Optics and Photonics West (SPIE)
- Laser Munich (OSA, SPIE)
- Biomed (OSA)

In addition we publish a significant amount of good technical information on our web site, www.boselec.com principally in .pdf format.

Finally, you are always welcome to phone or email us.

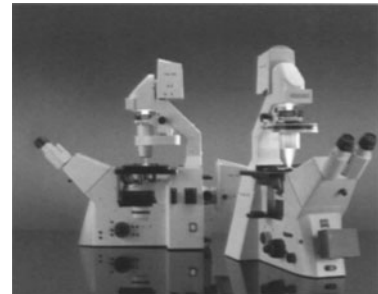
Carl Zeiss MicroImaging Inc.
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Tel: 800 233 2343 Fax: 914 681 7446
micro@zeiss.com
www.zeiss.com/micro

Specialty Keywords: Fluorescence; Confocal; FRET; 6D; GFP.

The field of fluorescence microscopy in biological research has seen an unprecedented evolution over the past 10 years. As a result, we are able to answer questions that we never dreamed possible. But the resulting demands upon the fluorescence microscope have also evolved in an unprecedented way. No longer do we ask yes or no. Today we ask how much, how many, how fast. We are observing GFP in whole animals (Zeiss M2Bio stereomicroscope) as well as single molecule fluorescence (Zeiss Axiovert 200 inverted microscope or FCS). We can scan tissue sections or gene microarrays. We no longer look at samples in 2D. Today, we demand 6D imaging.

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 - b. Fluorescence filter selectivity
 - c. Efficiency of illumination light train
 - d. Efficiency of imaging light train
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3. Flexibility of Platform
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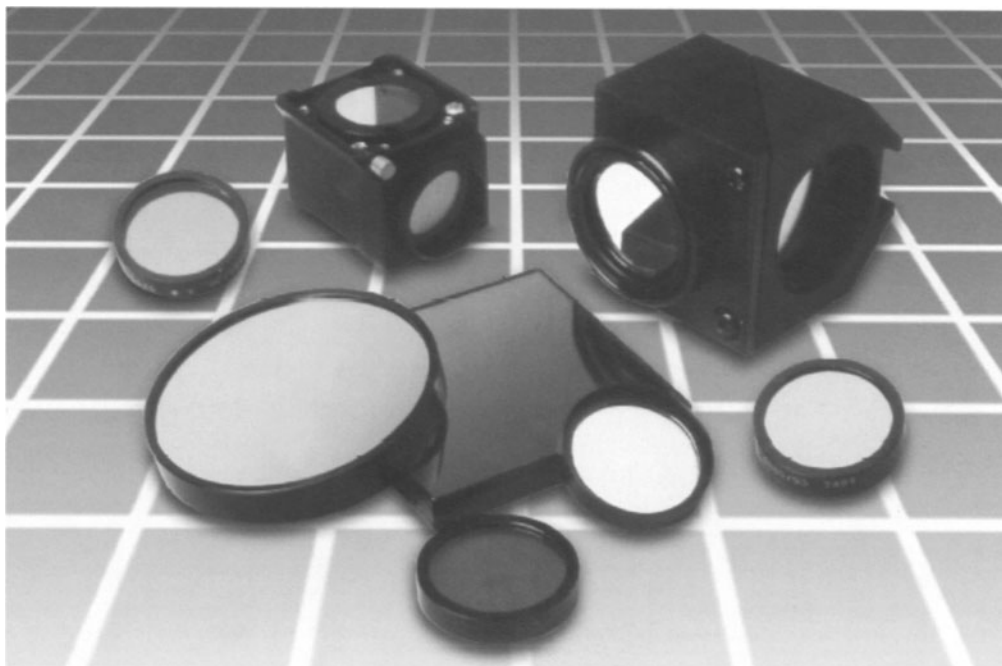
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Optical Filters & Coatings, Fluorescence Microscopy, Cytometry.

Chroma Technology Corp. is an employee-owned company that specializes in the design and manufacture of precision optical filters and coatings.

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Innovations in Fluorescence.

KEYWORDS:

*Lifetime Fluorometers,
Steady-state Fluorometers,
Time-resolved Microscopy,
Fluorescence Correlation
Spectrometers, Confocal
Imaging, And Near-Infrared
Oximetry*

ISS, Inc. was founded in 1984 and is an industry leader in the development of highly sensitive fluorescence instrumentation for research, clinical and industrial applications. The company's global customer base includes several world recognized universities, research institutions, and businesses in the Americas, Europe, Asia and Australia. Located in Champaign, Illinois, ISS operates in a 22,000 square foot facility which houses its corporate office, mechanical manufacturing department, electronics and optics facility, product-testing laboratory, engineering department and customer training center.

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- Chronos, Lifetime spectrometer

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- Time-resolved microscopy

Modular Components for building a spectrofluorometer:

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- Light sources, light detectors, processing electronics

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- TIRF cell, absorption measurements, Dewar, fiber optics

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Specialty Keywords: Fluorescence Lifetime Imaging Microscopy - FLIM, Fluorescence Resonance Energy Transfer - FRET, frequency domain, LED.

Lambert Instruments specializes in low light level image detectors and systems for scientific applications making use of image intensifiers, standard and custom made.

The **LIFA Fluorescence Lifetime Imaging Attachment** is a system that can be attached to any wide field fluorescence microscope, allowing fluorescence image acquisition and the generation of lifetime images.

The LIFA system works in the frequency domain, giving a very efficient use of the available photons.

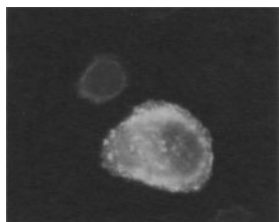


The use of LED's as modulated light source makes the system reliable, easy to operate and very cost effective.

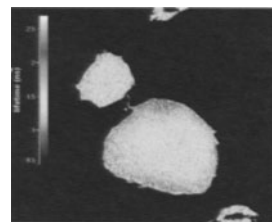
A high resolution image intensifier that can be modulated up to 120 MHz is efficiently coupled to a digital CCD camera at the detection side.

The system is used in Cancer Research and in the study of macro molecular interactions using GFP labeling in combination with FLIM as the technique to detect fluorescence resonance energy transfer (FRET).

Intensity



MCF7 cells with
ErbB.1-GFP as donor
and Py72/Cy3 as
acceptor showing
FRET by a change of
lifetime



Lifetime



WE COUNT ON PHOTONS

LaVision GmbH.,

Anna-Vandenhoeck-Ring 19,
D37081 Goettingen,
Germany.

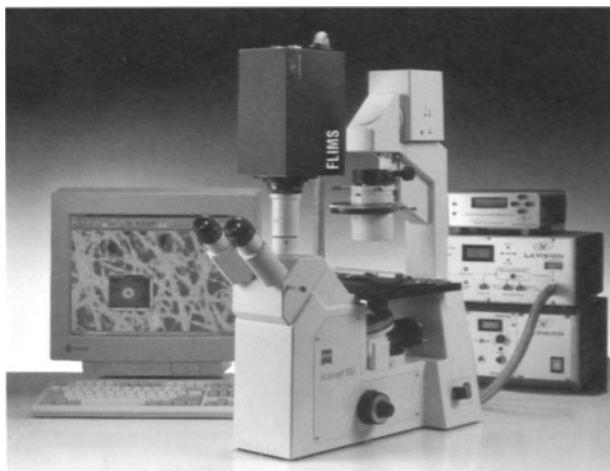
Tel: +49 551 900 40 Fax: +49 551 900 4100

info@lvision.de

www.lvision.de

North America: www.lvisioninc.com

CCD & ICCD Cameras, FLIM, LIF, Spray, Micro PIV



Ultrafast Gated Cameras

PicoStar HR	200 ps @ 110MHz
PicoStar UF	50 ps @ 1kHz
ModStar	gain modulation up to 1GHz

integrated turn-key systems for

- ▶ time-resolved imaging, spectroscopy and microscopy
- ▶ Fluorescence Lifetime Imaging Microscopy (FLIM)
- ▶ multifocal multiphoton microscopy
- ▶ imaging through scattering media
- ▶ time-gated Raman spectroscopy
- ▶ gating and ranging (LIDAR, underwater imaging)
- ▶ LIF for species detection, conc. and temperature measurements
- ▶ Micro PIV for micro-fluidic

Ocean Optics B.V.

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6921 RK DUIVEN,
The Netherlands.

Tel: 31-(0)26-3190500

Fax: 31-(0)26-3190505

E-mail address: Info@OceanOpticsBV.com

Website: <http://oceanopticsbv.com/>

Speciality Keywords: Spectrometers, Sampling accessories, Light sources.



Ocean Optics is a global leader in optical sensing, spectroscopy and biophotonics technologies. Our expertise in electro-optics, spectroscopy, optical fibers and precision optics offers great value to researchers seeking a flexible, full-service supplier. Our product line includes spectrometers ranging from miniature, modular systems and process analyzers; fiber optic chemical sensors for measuring oxygen and pH; optical filters and coatings to optical fibers, assemblies and probes. As an example, for fluorescence measurements, the Ocean Optics USB2000-FLG Spectrofluorometer is a preconfigured spectrometer that can be used to detect fluorophores in liquids and powders, and from surfaces. What's more, this miniature spectrometer is portable so it can be used out in the field to detect fluorescence in samples such as coral, fruit and other flora and fauna. Check out our broad list of applications at <http://www.oceanoptics.com/applications.asp> or for a live demonstration visit one of the trade shows we attend.

Olis Inc.
(On-Line Instrument Systems)

130 Conway Drive, Suites A & B,
Bogart, Georgia 30622,
USA.

(800) 542-3504

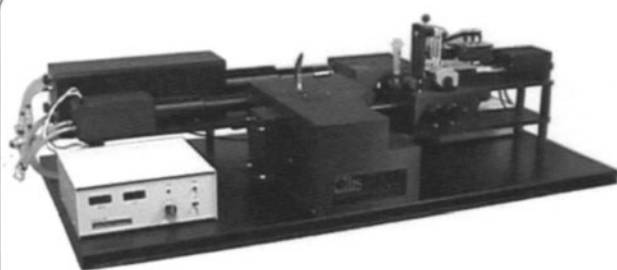
(706) 353-6547

Fax: (706) 353-1972

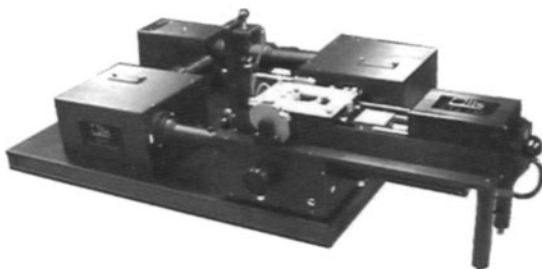
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<http://www.olisweb.com>

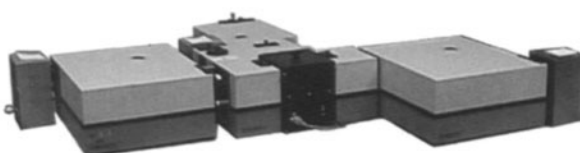
SLM Upgrades, Stopped-Flow, Anisotropy



Olis RSM 1000F Spectrofluorimeter with U.S.A. Stopped-Flow

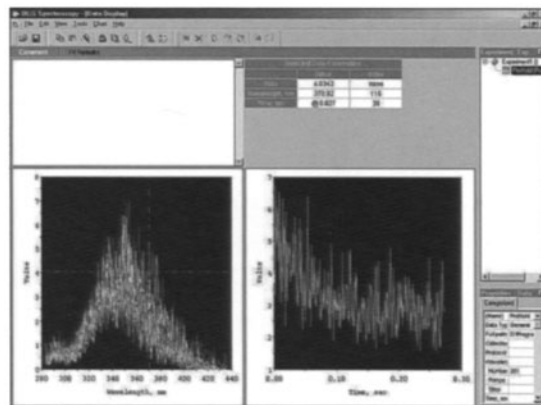


Olis DM45 Spectrofluorimeter with U.S.A. Stopped-Flow



Olis Upgraded SLM 8000 Spectrofluorimeter

Olis spectrofluorimeters support the most routine applications through the most challenging.



The Olis RSM 1000F (top) uniquely supports millisecond scanning as a function of excitation or emission wavelengths; emission spectra (shown) captured a protein unfolding in 250 millisecond.

All Olis fluorimeters support addition of polarizers, stopped-flows, titrators, Peltier cells, and other accessories; all operate with Olis SpectralWorks (Windows 2000 Professional) software.

Photon Technology International Inc.

1009 Lenox Drive, Suite 104, Lawrenceville,
NJ 08648,
USA.

Tel: (609) 896 0310
marketing@pti-nj.com
www.pti-nj.com

Specialty Keywords: **Fluorescence, lifetimes, ratio, imaging**

PTI Products...

Photon Technology International offers complete systems for the three primary areas of fluorescence measurements: **steady state, lifetime** and **microscopy/imaging**. Steady state and ratiometric measurements are represented by the **QuantaMaster** line – the world's most sensitive fluorometers. Fluorescence lifetimes are addressed by the **TimeMaster** line, the extremely versatile and powerful time-domain based lifetime fluorometers based on ***PTI***'s proprietary technology. And finally the **MicroMaster** offers systems for conventional fluorescence microscopy, fluorescence imaging, as well as specialized microscope-based systems for the measurement of fluorescence lifetimes. Thanks to ***PTI***'s **Open Architecture Design**, all of our fluorescence systems are compatible with one another. A QuantaMaster steady state fluorometer purchased today can be easily enhanced with TimeMaster lifetime system capabilities tomorrow. The ability to make measurements with microscopes can be added to a cuvette-based system and vice versa. ***PTI*** also offers an extensive line of **Optical Building Blocks (OBB)**, which include several types of quarter meter monochromators, cost-effective low-light level intensified CCD cameras, dual digital/analog compact detection systems, various microscope accessories including single and dual channel photometers, nitrogen lasers, nitrogen-pumped dye lasers and frequency doublers and various types of pulsed and continuous light sources.

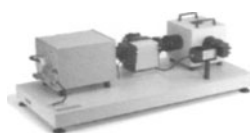
About PTI...

Photon Technology International Inc. is a public corporation that was established in 1983 to develop light-based instrumentation for fluorescence and phosphorescence spectroscopy and has been instrumental in pioneering many new innovations in the field. ***PTI*** develops and manufactures its own equipment. The Company, in conjunction with related companies (***PhotoMed GmbH, PTI Canada*** and ***PTI UK***), maintains offices, customer support and service in the U.S., Canada, Germany, Denmark and England. The remainder of our worldwide distribution is handled through company-trained representatives.

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Tel / Fax: +49 (0)30 6392 6560 / 6561
photronics@pq.fta-berlin.de
www.picoquant.com

Speciality Keywords: **Pulsed and Modulated Laser Systems,
Photon Counting Instrumentation, Fluorescence Lifetime Systems.**

PicoQuant GmbH is a research and development company based in Berlin-Adlershof, Germany. The company is leading in the field of single photon counting applications. The product line includes:



Fluorescence Lifetime Systems

- Modular or compact
- Picosecond time resolution
- Count rates up to 3 MHz



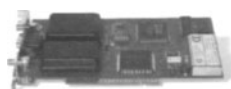
Picosecond Pulsed Diode Lasers

- Wavelengths from 370 to 1550 nm
- Repetition rates up to 80 MHz
- Pulse widths down to 50 ps



Laser Fluorescence Microscopes

- Integrated laser coupling module
- Multiple detector options
- Standard or inverse microscope base



PC boards for TCSPC

- Count rates up to 3 MHz
- Up to 4096 time channels
- 4-channel routers and FCS analysis

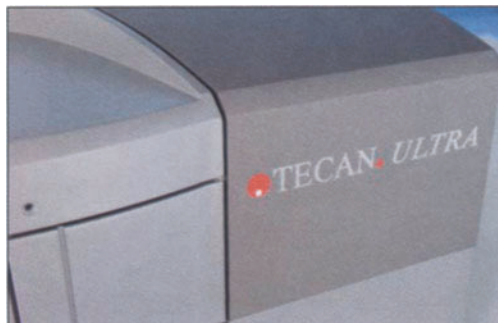
Services: 1) Annual International Workshop on Single Molecule Detection and Ultrasensitive Analysis in Life Science and 2) European Short Course on Principles and Applications of Time-resolved Fluorescence Spectroscopy.



ULTRA Evolution



Tecan's most advanced multi-functional microplate detection system offers the best levels of detection performance without compromising flexibility.



A multifunctional instrument for:

- Fluorescence Lifetime Measurements
- Fluorescence Intensity (UV and VIS range)
- Time "gated" fluorescence
- Homogeneous time resolved fluorescence
- Time resolved FRET
- Fluorescence polarization
- Glow type luminescence
- Absorbance (UV and VIS range)

Introduction

The Ultra Evolution is Tecan's latest development on the Ultra instrument platform. New features are available as user definable options which adds to the flexibility of the existing instrument along with possible upgrade paths should your needs change in the future.

New instrument Highlights

- Fluorescence Lifetime Measurement in Microplates

The already successful Ultra now offers a new technique – fluorescence lifetime measurement in the nanosecond time domain. Tecan have added state-of-the-art laser technology to the optical pathways, providing the user with a unique instrument for assay development.

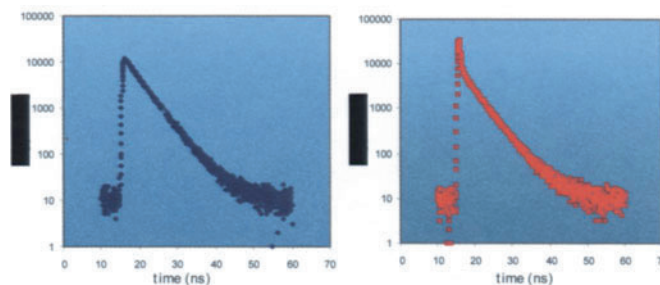
The laser excitation sources are coupled into the existing optical system, so that performance is still guaranteed with all the existing measurement techniques. As usual with Tecan ULTRA, there are several features designed to optimise the measurement parameters automatically in this new detection mode.

Tecan are able to offer a choice of two laser excitation wavelengths

Unique laser attenuation solution

Z axis focusing

Automatic decay curve fitting algorithm



- True bottom reading detection

Tecan have additionally added a further optical feature that extends the flexibility of the Ultra Evolution. The true bottom reading option retains the user-friendly function of "z" axis optimisation.

- Multi-Check QC Pac

With growing demand for traceability in detection devices, Tecan have developed the worlds first QC plate that supports the major detection methods available in Ultra Evolution.

Please visit the Tecan home page at www.tecan.com for more details or contact:

Dr. Dieter Popp, Product Manager at Tecan Austria GmbH, Untersbergstrasse 1A, Grödig/SALZBURG, Austria,
Tel: +43 6246 8933 x 131; Fax: +43 6246 8933 6131; Dieter.Popp@tecan.com



TEF Labs Inc.

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Austin,
Texas 78747,
USA.

Tel: 512 280 5223 Fax: 512 280 4997
support@teflabs.com
www.FluorescentProbes.com

Specialty Keywords: Molecular probes, Fluorescent probes.

TEF Labs specializes in fluorescent ion but also offers standard fluorophores like FAM, FAM-SE, TAMRA, TAMRA-SE, ROX, ROX-SE, FITC, TRITC, HEX, TET, JOE.

Scientist looking for state of the art molecular and fluorescent probes at reasonable prices can find a wide selection at www.fluorescentProbes.com. TEF Labs has recently released several novel dyes for high throughput screening.

Scientists interested in obtaining free samples for testing can email to newdyes@teflabs.com

Thermo

ELECTRON CORPORATION

5225 Verona Road, Madison,
Wisconsin, 53711,
USA.

Tel: 800 642 6538, 608 276 6100

Email: spectroscopy@thermo.com

Web: www.thermo.com/spectroscopy

Specialty Keywords: Thermo, Thermo Electron, AB2, AMINCO-Bowman. Spectrofluorometer.

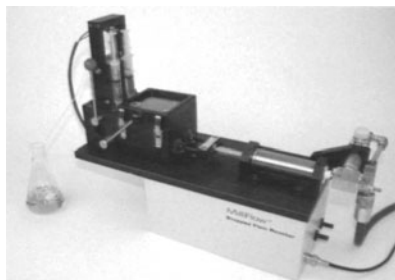
The Aminco Bowman Series II luminescence spectrometer (AB2) is a general-purpose spectrofluorometer that can be applied to a wide variety of analytical problems.



Its main features include fast, sub-millisecond data acquisition and research-grade optics that allow spectral bandpass settings on each of its two monochromators of 0.5, 1, 2, 4, 8 and 16nm. The AB2 has a signal-to-noise sensitivity of 900:1 (p-p) and 2000:1 (RMS).

A complete menu of built-in software applications and an extensive selection of accessories make the AB2 a versatile instrument for research and routine applications.

A 150-watt continuous wave xenon lamp (for best sensitivity) and a xenon flash lamp (for phosphorescence measurements) can be mounted simultaneously inside the instrument.



The AB2's major accessories include the MilliFlow™ stopped flow accessory for monitoring fast chemical reactions at millisecond rates (shown left, above) and two types of polarizers. The filter wheel polarizers (shown left, below) are for use in the visible spectrum and are less expensive than the AutoPolarizer (not shown), which has quartz prism polarizers for work in both UV and visible wavelengths.



Software and sample handling accessories for the determination of intra-cellular ion concentrations are available. An optional T-optic configuration can be used for fast dual emission wavelength work and for fast polarization measurements.

New! The AB2 System now supports Polarization and Anisotropy during Wavelength scans and Time Trace measurements.

Varian, Inc.

Scientific Instruments

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Web: www.varianinc.com



VARIAN

We're leaders and innovators in creating solutions that solve a wide range of challenges in life science and industry.

Varian instruments, consumable supplies, and solutions are key tools in bio-molecular and academic research, pharmaceutical R&D and manufacturing, and industrial R&D and quality control. Our major product ranges include:

AAS • Dissolution • Fluorescence • GC • HPLC • ICP • MS • UV-Vis-NIR • NMR • Consumables

Fluorescence and UV options

Varian's range of Fluorescence and UV-Vis spectrophotometers bear the Cary name that has been associated with high performance spectrophotometers for over 50 years. The Cary Eclipse fluorescence spectrophotometer fits well within the Cary range, offering the excellent specifications and modern software that has become the Cary standard. Features include:

- A choice of fluorescence, phosphorescence or chemi/bio-luminescence collection modes with the click of a mouse
- Excellent sensitivity, which extends across the entire UV-Vis wavelength region and into the red
- The widest range of accessories in the industry, including a microplate reader, polarizers, peltier multicell and single cell holders, fast filter device, fiber optics, and more
- Powerful and easy-to-use software

Inspiring Excellence™ is at the Heart of Our Business

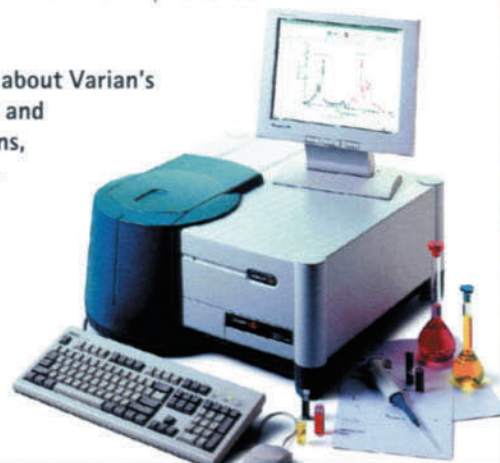
Our people, products, and solutions enable customers to meet increasingly complex challenges in life sciences and industry.

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www.varianinc.com

Instructions for Contributors

Scientists and workers in academia, industry or government employing fluorescence in their everyday working lives are invited to apply for entry in the *Who's Who in Fluorescence* 2005 annual volume.

The annual volume, edited by Chris D. Geddes and Joseph R. Lakowicz, publishes the names, addresses, contact details and a brief paragraph describing fluorescence workers specialities.

To apply for entry in the *Who's Who in Fluorescence* 2005 volume, complete the personal template (Word 2000 format) found at <http://cfs.umbi.umd.edu/jf/> and e-mail to wwif@cfs.umbi.umd.edu no later than August 31st 2004. Unsuccessful entries, entries not conforming to the template format, or those received after the closing date will be returned without further consideration.

Contributors are asked to keep file sizes as small as possible by using appropriate standard picture formats, such as JPEG and TIFF etc. Alternatively, electronic versions can be submitted by post (CD) to:

Chris D. Geddes and Joseph R. Lakowicz
Editors: *The Who's Who in Fluorescence*,
The Institute of Fluorescence and
The Center for Fluorescence Spectroscopy,
Medical Biotechnology Center,
725 West Lombard St,
Baltimore, Maryland, 21201, USA.

Galley proofs of entries will appear on the *Who's Who* website after the closing date. Contributors are asked to verify all details, with regard to *typesetting errors only*, within the 2-week period and return corrected proofs, preferentially via e-mail.

Personal half-page entries in the *Who's Who in Fluorescence* 2005 volume are free of charge. Further instructions and announcements will be posted on the website during the *Who's Who* entry collection period, January 1st – August 31st annually.

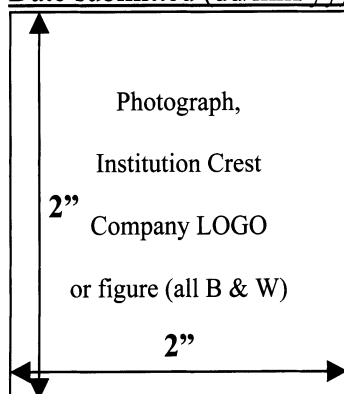
Fluorescence based companies may also submit a full-page company profile in the *Who's Who in Fluorescence* 2005 volume for a fee of \$600.00 (black and white), \$2000.00 (4-colour), prices subject to change. Full-page company templates may be found at: <http://cfs.umbi.umd.edu/jf/> For colour images and high resolution images, companies are asked to contact the editors to discuss their requirements beforehand.

Institutions, academic research groups and centres of scientific excellence are also invited to submit full-page profiles for a fee of \$250.00 (black and white), \$2000.00 (4-colour), also using the company template found on the *Who's Who* website. Both company and institutional submissions are also to be submitted by August 31st 2004.

Further enquiries are to be directed to the editors at the above address or to: wwif@cfs.umbi.umd.edu

Personal Template

Date submitted (dd/mm/yy) First Name, Initial, Surname, Highest Degree –14 pt Bold



Department, Institution, (One main Address),

Street name, City,

County, Zip code,

Country.

Tel: Fax Numbers

E-mail Address

Homepage URL

Specialty Keywords: Keyword 1, Keyword 2, Keyword 3

A brief description of ones research is to be included here, 12 pt, single space. All fonts should be 12 pt, Times New Roman. This text should be no more than 75 words (6 lines). Letter page size, 8.5x11 in (Portrait), 1" left, 1" right margins. The total area *should not exceed* 4.25 in height x 6.5 in width. A maximum of 2 references in the *New Journal of Fluorescence* format can also be placed at the bottom of the text to reflect ones expertise.

Ref 1: Chris D. Geddes and Joseph R. Lakowicz, (2002), Metal-enhanced Fluorescence, *J. Fluorescence*, **12**(2), 121-129.

Ref 2: E-mail complete forms by August 2004 too: wwif@cfs.umbi.umd.edu

Two entries per page will appear

Names will appear alphabetically.

Company entries will appear at the back of the issue, also alphabetically.

Company and Institutional Template

Date of entry (dd/mm/yy)

Company Name / Institution (14 pt Times New Roman, **Bold**)

Department, Institution, Branch

Street name, City,

County, Zip code,

Country.

Tel: Fax Numbers

E-mail Address

Homepage URL

Specialty Keywords: **Keyword 1, Keyword 2, Keyword 3**

Letter page size, 8.5x11 in (Portrait), 1" left, 1" right margins. The total area *should not exceed* 8.5 in height x 6.5 in width. Where possible text should be 12 pt Times New Roman.

Please submit entries as a word file and not pdf.

This space may be filled as required. All figures or images are to be black and white. For pricing of color images, please contact Chris D. Geddes at the editorial office.

Company entries will appear at the back of the issue, also alphabetically.

Companies and institutions occupy one Page respectively.

E-mail complete forms by August 2004 to: wwif@cfs.umbi.umd.edu

8.5 “

6.5 “